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THESIS

MONITORING SOVIET NAVAL DEVELOPMENTS
THROUGH BINARY THEMATIC CONTENT ANALYSIS

by

Thomas Philip Dolan

September, 1985

Thesis Advisor: Edward J. Laurance

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T226286

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER

2. GOVT ACCESSION NO.

3. RECIPIENT'S CATALOG NUMBER

4. TITLE (and Subtitle)
Monitoring Soviet Naval Developments Through Binary Thematic Content Analysis

5. TYPE OF REPORT & PERIOD COVERED
Master's Thesis
September 1985

6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s)
Thomas Philip Dolan

8. CONTRACT OR GRANT NUMBER(s)

9. PERFORMING ORGANIZATION NAME AND ADDRESS
Naval Postgraduate School
Monterey, California 93943-5100

10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS

11. CONTROLLING OFFICE NAME AND ADDRESS
Naval Postgraduate School
Monterey, California 93943-5100

12. REPORT DATE
September, 1985

13. NUMBER OF PAGES
116

14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)

15. SECURITY CLASS. (of this report)

15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)
Approved for public release; distribution is unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)
Soviet Navy, Content Analysis, Morskoy Sbornik, CPSU, Great Patriotic War, Soviet Naval Digest, Naval Selections

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
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DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

S/N 0102-LF-014-6601

of the Communist Party of the Soviet Union on the Soviet military was revealed using this technique.

This particular type of content analysis used a thematic approach, using binary coding of topics, enabling large amounts of material to be surveyed in a relatively short period of time. Creation of a computer data base for analysis is described, and original source code of programs has been included. Recommendations for dissemination and use of such a data base to appropriate users are included.

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Monitoring Soviet Naval Developments Through Binary Thematic Content Analysis

by

Thomas Philip Dolan
Lieutenant Commander, United States Navy
B.A., Drake University, 1974

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF ARTS IN NATIONAL SECURITY AFFAIRS

from the

NAVAL POSTGRADUATE SCHOOL
September, 1985

Thesis
D67E
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I. THE NEED FOR UNDERSTANDING SOVIET THINKING

The imperfect nature of diplomatic relationships requires nations to assume that a military backup to those relationships will be a necessity in the future. As Frederick the Great of Prussia put it, "Diplomacy without armaments is like music without instruments." [Ref. 1:p. 108]

Given the distaste that Americans have for large standing armies, it can be expected that U.S. armed forces will remain relatively weak in terms of their capability to engage in sudden, worldwide combat. This means that a great deal of foresight will be required to use existing forces in an effective manner. A policy of "know thine enemy" is therefore a prudent one.

This thesis presents a method of estimating the concerns of Soviet decisionmakers through evaluation of Soviet publications. Source documents were drawn from a single, regularly-published journal, and references to topics thought to be of concern to Soviet military writers were recorded as they occurred over a 36-month period.

This method differs from other techniques of content analysis in that references to specific topics are measured and recorded in binary form. This technique allows a larger body of material to be researched in a given time, and

prevents a small number of articles emphasizing a single topic to detract from a general trend of editorial interest.

Another difference is that, recognizing the difficulties inherent in working with translated documents, themes, rather than strict mechanical word counts, were utilized. A wide variety of possible terms were selected for initial data collection, allowing both discrete categorization and combination of similar themes. For example, Germany can be evaluated by references to the Federal Republic of Germany, the German Democratic Republic, Fascist Germany, or Hitler(ites).

Since a methodology was being tested, source materials were limited to unclassified publications. However, it will be shown that this methodology could be applied to other types of publications and levels of data, as long as certain criteria are met.

Although data analysis was done on a mainframe computer, the techniques used for data processing could be applied to microcomputers using appropriate software. The algorithm of a specially-designed data entry program, as well as the source code for use on an IBM 370 computer, have been included.

Data are presented in graphic form. Although only a limited number of topics are described in detail, appendices provide the results of all research done in support of this investigation.

A. THE NEED FOR MILITARY INTELLIGENCE IN PEACETIME

Military doctrine, in the Soviet sense, is the preparation for future war [Ref. 2:p. 38]. An understanding of that doctrine would allow U.S. planners to anticipate how the Soviets might undertake military action against American interests and to prepare for such actions, just as Soviet military doctrine envisages preparations against enemies of the Soviet state.

Such early preparation would obviously be advantageous to either side, particularly in view of modern technology which calls for specialized platforms, and the long lead times required for constructing these platforms. Modern warfighting techniques have shortened the reaction time for preparation for war, a fact which has been well known since the introduction of ballistic missiles and nuclear weapons. Sokolovskiy pointed this out in the 1962 edition of Soviet Military Strategy (Voyennaya Strategia), where he states,

> "The possibility of a surprise attack by an aggressor making mass use of nuclear weapons immeasurably increases the requirements of constant combat readiness of the Armed Forces. At the present time the bringing of troops into combat readiness must be measured not by days and in a number of cases even by hours. For many units and formations it is now a matter of minutes." [Ref. 3:p. 204]

While modern air transport, such as that available via the Military Airlift Command and the Civil Reserve Air Fleet (CRAF) [Ref. 4] may help somewhat in the positioning of what standing forces there are, the opposite side of this double-edged sword enables an opponent to insert forces into

an area much more rapidly, as might be done by Soviet Military Transport Aviation forces [Ref. 5:p. 117]. This rapid movement of existing forces reduces the ability of powers to counter another nation's military power through mobilization. It is this ability to mobilize which is the basis of NATO's minimal standing forces.

However, examination of modern weapon systems reveals the inadequacies of a doctrine dependent on mobilization, due to the difficulties of developing and producing ships and aircraft. The F-15 Eagle, now the frontline air superiority fighter in the U.S. Air Force inventory, took seven years from inception to flight of the first prototype. Its first operational delivery was two years later [Ref. 6:p. 403]. Similarly, a ship already in production, like the Navy's FFG-7, takes 28 months from the laying of the keel to become operational. [Ref. 7:p. 678]

B. METHODS OF PREDICTING SOVIET ACTIONS

Currently, national-level advice on threats and scenarios is provided to the National Command Authority through National Intelligence Estimates (NIEs). These documents provide a view of situations which is a compromise of the views of the various concerned intelligence agencies. As might be expected, this composite view tends to produce an outlook brighter than that derived by the military intelligence agencies. Rather than merely modifying the

military's "worst-case" philosophy, however, the National Intelligence Estimates consistently tend to overstate the U.S. advantage, in part because they fail to include historical, social, and political factors behind Soviet actions. [Ref. 8]

This record of inaccuracy of NIEs was documented by Dr. Alfred Wohlstetter in his 1974 study "Legends of the Strategic Arms Race, Part I: The Driving Engine" [Ref. 9:p. 11], where he points out a very strong tendency to underestimate Soviet capabilities. In describing the "missile gap" of the early 1960s, Dr. Wohlstetter points out the problems of estimating Soviet capabilities as only a threat to the United States:

> "First, the 'missile gap,' a brief period in which the Soviets were expected to but did not deploy ICBMs more rapidly than we did, was an ICBM gap rather than a general missile gap. During the same period, in fact, we regularly and greatly underestimated the number of intermediate and medium range ballistic missile (IR/MRBM) launchers that the Russians would deploy at the end of the 1950s and in the early 1960s. For example, our underestimate of the number of IR and MRBM launchers that the Russians would deploy by 1963 roughly offset our overestimate of the number of ICBM launchers they would deploy. In short, we misunderstood or reversed the priorities the Russians assigned to getting capabilities against the European as opposed to the North American part of NATO. This piece of ethnocentrism on our part was characteristic. We also greatly underestimated Soviet aircraft systems directed primarily at Europe rather than ourselves." [Ref. 9:p. 9]

Another approach, one taken in part by the now-famous "B-Team" assigned by President Ford to analyze Soviet strategic programs, is to incorporate historical trends in

evaluating the motivations behind actions. Trend extrapolation using prior occurrences as an indicator for future events may be valid if a legitimate cause-effect relationship can be determined, and if a period of time long enough to separate secular (long-term) from seasonal or cyclic patterns is chosen [Ref. 10:p. 478]. Shorter periods may give erroneous trends due to observations of portions of cycles or to external stimuli. An examination of the state of Soviet industry from 1945-1950 shows tremendous growth, for example, but over the period 1930-1960 the growth is shown to be only a reestablishment of the average development, which was interrupted by World War II. [Ref. 11:p. 81]

While historical trend analysis is best suited to long periods of time, it must be remembered that the Soviet Union has a relatively short history. However, as will be shown, much of Soviet culture and behavior was inherited from the Russian state which preceeded it.

A last, and unfortunately common, method of estimating Soviet intentions is to view the U.S.S.R. as a mirror-image of the United States, with the same goals and desires. This technique is often seen in analyses by both sides, and usually stems from a lack of understanding of the long-range goals of one's opponent. It is quite common in the American and European peace movements, which assume that the Soviets have aims identical to their own. Rather than sharing an

interest in disarmament, however, the Soviets usually demonstrate that their concern lies in security. The cause-effect relationship is misjudged.

The traditional Russian tendency toward isolation from outsiders has kept much of Soviet teachings, and thus an understanding of the Soviet people, from the West. Many Americans are ignorant of Soviet attitudes. Moshe Lewin correctly states that

> "There is astonishment sometimes among people who are highly competent and master complex realities in other spheres of life when they are told that 'what makes the Russians tick' is not some simple mechanism located in the Politburo, but the country's history, traditions, culture, economy, social structure, international environment. Also leadership--in that order, at the end of those big components, important but a part of a larger institutional setting, in interplay with groups, classes, and even--yes! --different ideological approaches." [Ref. 12:p. 6]

Those who do not accept the complexity of the differences between American and Soviet cultures often are led to create a mirror-image,

> ". . . to delude oneself by saying that all the patterns in the world are basically the same or that the differences don't matter or are mere conventions." [Ref. 13:p. 49]

While the Soviet penchant for delusion makes purely historical analysis difficult for an observer, it can be used as a means of determining Soviet concerns.

C. AMERICAN VERSUS SOVIET ROOTS

Before attempting to analyze the motivations of any group of people, one must first have a sense of the history

of that group. This is particularly evident when one looks beneath the surface of modern Soviet culture, and observes the contrasts between American and Soviet/Russian history.

America took much of its culture, law, and governmental procedures from the British. This adoption was initially complete even to the point that some of the Founding Fathers made recommendations that George Washington be the first king of America. He demured, and a different type of government was instituted.

What was inherited from the British was a legalistic system with a distaste for monarchy. Russia, at that time, was a monarchy which had developed separately from the British system. The Russian system was cloaked in secrecy, and had distinct classes which had different patterns of behavior. While the American legal system claimed application to all citizens, in Russia

> ". . . popular law was deeply enmeshed in the fabric of peasant society and that its special institutions and customs had no equivalent among other social groups and often no counterpart in the official and criminal codes." [Ref. 12:p. 76]

> ". . . rural customs were often simply barbaric--lynching thieves, parading unfaithful wives naked through the village, and much worse; that the cantonal court was a shambles, its judges were illiterate, drunken, and corrupt, and its decisions derived not from peasant mores but from the clerk (pisar'), who simply invented 'customs' according to his whims . . ." [Ref. 12:p. 77]

Such behavior is distasteful to the American way of thinking, and may be rejected as the actions of a barbarous people long past. American students are not taught that

such customs were still being practiced late in the last century, well within living memory of the founders of the Soviet state.

Another vast difference between the Soviet and American peoples is in their memories of war. The wars of this century have been fought away from the continental United States, but have been brought to Russian and Soviet territory on a regular basis. The Russo-Japanese War, the Russo-Finnish War, World War I, the Soviet Civil War, and the Great Patriotic War all were fought at least in part on the soil of the Motherland.

The Soviet history of frequent wars was also inherited from Russian forebearers. As the Russian-born sociologist Piritim Sorokin found, Russia

> ". . . had experienced only one peaceful quarter of a century in the previous thousand years; in every other period of twenty-five years she engaged in at least one foreign war. Since the year A. D. 901, . . . Russia had been at war in 46 of every hundred years." [Ref. 1:p. 3]

The Great Patriotic War of the Soviet Union is kept alive in the minds of Soviet citizens by a multitude of memorials dedicated to the defenders of the Socialist Motherland. Literary works describing the exploits of Soviet heroes abound, and descriptions of operations from this war abound in Soviet military journals. The Allied victory is portrayed as primarily a Soviet one, where the Soviet armed forces fought massive German forces while American and British troops engaged only weaker forces.

Memory of the "crimes" of the Nazis is also perpetuated, modified in some cases from what is known in the West.

As an example, a memorial to the victims of the Katyn Forest massacre of Polish officers and men was erected at the site to preserve anti-Nazi sentiments. However, it is widely accepted in the West that the Poles were killed not by Nazis, but by the Soviets themselves, to make Polish reconstruction more difficult [Ref. 14:p. 32].

Such manipulation of history is in keeping with Soviet style. As Nathan Leites noted in the RAND Corporation study, The Operational Code of the Politburo,

> "In deciding upon what statements to make both within the Party and without, the leadership must not be influenced by considerations of truth. Only the impact of these statements should be considered. Bourgeois governments are held to follow the same rule.
>
> "There are occasions when falsehoods--which are obvious to all informed groups--are useful. [Ref. 15:p. 9]

Under Josef Stalin revision of history became a standard means of dealing with associates who had fallen from favor, and contributed to Stalin's "cult of personality." Roy Medvedev, a Soviet dissident still living in Moscow, states that

> "The deification of Stalin, the creation of stories about his infallibility and omniscience, generated a quasi-religious perception of reality in the scholarly community. The truth was not what corresponded to facts, to empirical research, but what Comrade Stalin had declared to be true. Quotations from 'the classics of Marxism-Leninism,' and above all from the newly canonized classics of Stalin, became the main proof that a given position was true. Inconvenient facts were juggled, distorted, or simply ignored." [Ref. 16:p. 499]

This revision of history has continued, and has gone so far as to include the United States as a supporter of and collaborator with the Nazis. A Soviet military dictionary refers to foreign special forces (spetsial'nyye voyska) as

> "Special units and formations of the armed forces of the USA and other imperialist states . . . Among them are traitors who have deserted socialist countries, who collaborated with Hitlerites and have found asylum with the American militarists." [Ref 17:p. 205]

This quotation points out another factor which must be contended with when dealing with Soviet or Russian writings, that of a symbolic style which is applied to factual material as well as fiction.

The founder of the Soviet state, Vladimir Il'ich Lenin, complained of how his fellow believers had to circumvent the Tsar's censorship by use of "that cursed Aesopean language" [Ref. 18:p. 7]. This style of writing, in which situations are described as allusions to the writer's actual feelings, was not merely a Bolshevik invention designed to avoid persecution, but rather was common in Russian times and can still be found in contemporary Soviet writings. Stories told through Aesopean language may describe situations which seem very real, but which in fact describe a much broader reality.

A case in point is Alexander Solzhenitsyn's One Day in the Life of Ivan Denisovich [Ref. 19]. On the surface, this story describes the daily activity of a laborer in a Soviet prison camp during the reign of Stalin. However, to the

intended readers, it was a damnation of the entire Soviet system. The words themselves do not carry the message, but the descriptions they form do.

The lack of objective truth in some current Soviet writings can be interpreted as an extension of Aesopean language. Situations are described as the Soviets perceive them, or would like others to perceive them, rather than as they are. Thus Americans can be described as Hitlerite collaborators not because they supported the Third Reich, but because Americans are believed to be a threat to Soviet security, a threat reminiscent of the Nazi invasion.

In another method of applying Aesopean language, stories from the past are used to indicate current concerns. In this regard the stories are a manipulative training tool, intended to arouse the reader's emotions of past hatred and to tie this to a current enemy. For this reason, the relative frequency with which certain topics are discussed over time can be used as a measure of the concern of policymakers.

Throughout any analysis of Soviet writing, rather than taking Soviet statements at face value, one must look for the meaning behind the reason something was said initially. Even discounting the difficulties of working in a foreign language, or with translations (which is no small dismissal!), a hard analysis of literal statements can be very misleading to the reader if the context of the

statements is not appreciated. Given the proper consideration of context as well as content, the concerns of authors can be derived from their writings. Given also the strict control that the Communist Party exercises over publications in the Soviet Union, those writings which are published will portray a well-studied official view, and thus may be used to derive the true feelings behind their release.

Once the analyst is aware of the differences between Soviet and American motivations, of the way that messages can be transmitted, and of the control that authorities have over published materials, it is evident that the Soviet system is not a mirror-image of the American one. By measuring the output of this different system, though, the analyst should be able to estimate what the Soviet authors and editors wished to have understood.

II. EXPLOITATION OF SOVIET CONTROL OVER LITERATURE

Once the differences between Soviet and American styles of writing have been recognized, it remains the job of the analyst to make some use of these differences. Recognizing that falsification, allusion, and selective omission are common traits of such writing, the trends revealed by observation of topical references over time should give light to the thoughts of the originators of these writings.

To test the hypothesis that Soviet concerns are transmitted to readers by using less-than-explicit means, an analysis of an unclassified military journal was conducted.

A. THE NATURE OF MORSKOY SBORNIK

As with all official Soviet publications, the content of Morskoy Sbornik (Naval Selections, also referred to as the Soviet Naval Digest) is highly controlled. Since high-level approval is required for publication, examination of its subject matter should give an insight as to the concerns of its editors.

Morskoy Sbornik is one of several journals published by Voyenizdat, the Soviet Military Publishing House. Voyenizdat is subject to direction by the Main Political Administration (MPA) of the Soviet Army and Navy. The MPA receives its instructions from the Central Committee of the Communist Party of the Soviet Union (CPSU). [Ref. 2:p. 288]

Thus Morskoy Sbornik is actually a channel for doctrine (in the American sense of the word) from the Party leadership to a select group. This dictation is by no means insidious--the role of the Party is quite overt. As the 1971 edition of the Soviet Officer's Handbook states,

> "Leadership of the Communist Party and reinforcement of the role and influence of the Party organizations in the Armed Forces, which is emphasized in the Program of the CPSU, is the basic principle of Soviet military development." [Ref. 5:p. 13]

This close relationship between the Party and the publishers of Morskoy Sbornik provided a known field for a test of content via the proposed method. Other themes of expected interest were also examined, as will be described below.

Since the journals examined were originally published in Russian, translations prepared by the Naval Intelligence Command were used for analysis. Recognizing the difficulty of using such translations, a large volume of material was used for the study, assuming that the Law of Large Numbers [Ref. 10:p. 118] would even out any inequities caused by mistranslation. Recognizing that some filtering of the content occurs in translating, or in deciding not to translate some articles, an inquiry to the source of the translations was made. Discussions with Mr. Herbert Rooney of the Naval Intelligence Support Center (NISC-62, Translation Services) established that all articles which pertain to warfighting techniques, strategy, and doctrine are

translated and published. Those left out pertain to minor historical situations, literary, cultural, and administrative issues. Examples include book and cinema reviews, discussions on such items as whether or not commanding officers should receive a certificate for their service, and a series on "The Navy on Postage Stamps." When a particular untranslated article is found to have relevance after the translation has been distributed, that article is issued as an addendum to the issue.

B. TESTING FOR CONTENT

In examining Morskoy Sbornik, a three-year period from 1970 through 1972 was selected for study. Events of this time are well known by now, and this period includes the first world-wide Soviet naval exercise, the 24th Congress of the Communist Party of the Soviet Union, and the publication of Admiral Gorshkov's first major literary work known to the West, "Navies in War and Peace."

A total of 160 subject areas (Appendix A) was picked for analysis. These areas were selected to represent themes common to naval writings in Morskoy Sbornik and Voyennaya M'ysl, the Soviet General Staff journal. Major geographic and political areas of the world are represented, as are major oceans and various warfighting techniques. Data pertaining to topics were collected in a binary form (that is, either a topic was mentioned or it was not). No attempt

was made to weight the value of a particular reference within an article. Thus this method is more properly described as a theme analysis as opposed to a formal content analysis.

As Manheim and Rich point out [Ref. 20:p.158], another difficulty encountered in this type of analysis is the context or application of certain words or phrases. In Soviet military writings, for example, the United States may be referred to as a nation which once rebelled against imperialism, as a one-time ally against Fascist Germany, or as the imperialist organizer of NATO. In coding the thematic references, a variety of reference types was included. Rather than merely observing the mentions of "imperialism," for example, the applications of that term, such as "Encirclement by Imperialists," the "Imperialist Threat to Peace," and the belief that "Imperialists Unleash War," or might do so, were counted separately. References were kept as exclusive of one another as possible; for example, mention of a ballistic missile-carrying submarine (SSBN) would be counted in that category only, not in both SSBNs and SUBMARINES.

An advantage to such separation of terms is that the topic or topics can be considered separately. Rather than simply ignoring the contextual use of topics, however, this actually aids in an objective analysis of the concerns of the writer, in that disinformation can be eliminated from

the analysis. For example, Admiral Gorshkov, in describing the course of the war against Japan in World War II, states:

> "Japan had gained control of the sea which permitted her to carry out several amphibious operations in the first stage of the war. In two months the Japanese occupied the Philippine Islands, the Malacca Peninsula with the major British port of Singapore, Indonesia, Burma, and many islands in the Pacific Ocean. Japan seized the vast economic resources of Southeast Asia. However, as a result of the victories achieved on the Soviet-German front, particularly in the Battle of Stalingrad, which determined the turning point in the course of the entire war and which was consolidated by subsequent victories of the Soviet Army, already by 1943 the Japanese were refraining from further offensive operations and had gone over to a strategic defense." [Ref. 21:p. 9]

Despite any arguments which might be made as to the contributions of Allied naval forces in the Pacific, Admiral Gorshkov's statement reveals a concern for the memory of the Great Patriotic War, Japan, Southeast Asia, amphibious operations, and the Soviet Army. In this case, the author was not advocating naval air power, as evidenced by its exclusion from the discussion of the war against Japan.

In this case, Admiral Gorshkov's apparent intent was to show how Soviet military might brought about the fall of the Axis powers. Examination of topical references in this manner reveals the concerns of the author without the distraction of having to determine truth or falsehood of statements. This latter determination must be approached on a case-by-case basis, recalling Leites' comments on Soviet considerations of truth and its impact. [Ref. 15:p. 9]

Another area of difficulty which might be encountered is that of geography, particularly as it relates to military history. References to "the heroes of Moon Sound Archipelago" again mean little to American readers, but to Soviets they evoke memories of an amphibious battle fought over islands in the Baltic. An extensive atlas of the Soviet Union, or a reference such as the Great Encyclopedia of the Soviet Union [Ref. 22] is recommended.

An associated difficulty is that some concepts common to American readers, when translated directly, might not be recognized. References to the Brezhnev Doctrine, for example, will not be found in writings intended for Soviet readership. However, the essence of that doctrine, i.e., that it is the duty of the Soviet Union to defend the gains of Socialism, was a theme which could be tracked. Similarly, the term "naval operations" is not used. Instead, references are made to "combat operations at sea."

To assist in intercoder reliability, a list of commonly-used words and phrases (Appendix B) has been included to enable continuity in further research.

C. DATA EXTRACTION

To reduce the textual material to a formatted data base, a worksheet containing the desired fields (author's name, rank, and source, plus 140 topics) was prepared and reproduced in small quantity. A trial coding of a six-month

period was made to determine the completeness of the topic list. Based on this test, twenty additional topics were selected. Although several topics in the original list did not appear, they were left in the final topic set in the event that they might appear in source materials from other months.

This initial coding also served to even out the "learning curve" associated with performance of a new activity.

The initial coding revealed that one regular monthly article, entitled "With the Ships and Units of the Fleet," had a consistent content which included reports on all the fleets of the Soviet Navy, its flotillas, and service academies. Items discussed in this series were of a non-operational nature, dealing with unit and individual awards. Since data was recorded in binary form, and all fleets, flotillas, and units were mentioned on an equal basis, this series had an overall levelling effect on the data. For this reason the series was omitted from the final data set.

For final coding, a revised worksheet was prepared and reproduced. Each article in the 36 journals was read and evaluated according to the worksheet. As with most research of this type, this step was the most tedious, particularly in view of the pedantic style of writing used in Morskoy Sbornik during the years studied.

Those articles which had not been translated were evaluated as best they could by title and extract in the table of contents. In these cases, technical and historical reference books provided many clues to the content of the articles. A title such as "The LEMBIT Attacks" [Ref. 23] means little by itself; however, the 1945 edition of Jane's Fighting Ships tells that the LEMBIT was a Soviet attack submarine which achieved fame in the Great Patriotic War. Such additional research, as well as discussions with NISC translators, enabled a more complete data base to be assembled.

After a number of worksheets had been completed, the extracted data was input to a data file via a specially-prepared input program. This program, which is described below, greatly reduced the time for input from what would have been needed for purely manual keying. For a long-term research project, however, a computer terminal equipped with a light pen for operator-to-screen input could reduce the input time even more.

D. DATA PROCESSING

The volume of data collected required special processing. With 997 cases of up to 166 entries each, (title, author's name and rank, academic status, month and year of publication, plus the 160 specific topics), over 165,000 items of data were possible. Manual sorting and

crosstabulation of the data were out of the question, so an existing computer statistics program, SAS [Ref. 24], was used for data processing.

To simplify data entry, a program written in Display Management System (DMS) code was used. This program, specifically prepared for this project, gives a full-screen display of desired fields on the IBM 3278 terminal (Figure 1). Title, author's name, rank, and academic status, and source of publication are alphanumeric entries, while month, year, and the 160 variable inputs (which may range from zero to 255) are strictly numeric. An option is provided to assign a case number (000-999) and length (000-255) to each article. Source code for this program, which can be easily modified to suit one's specific requirements, plus operating instructions for use on the IBM 370 mainframe computer, are included as Appendix C.

Once entered, the data were analysed using SAS. All topics were initially sorted as to total frequency for all readings, then broken down to provide a monthly rate of mention. The SAS SORT, PLOT, and TABLES procedures provided the most useful outputs for analysis. Although PROC CHART gave a graphic output, it was limited in its ability to display the full 36-month period on a single graph. Instead, graphs for each topic were prepared using separate graphics software.

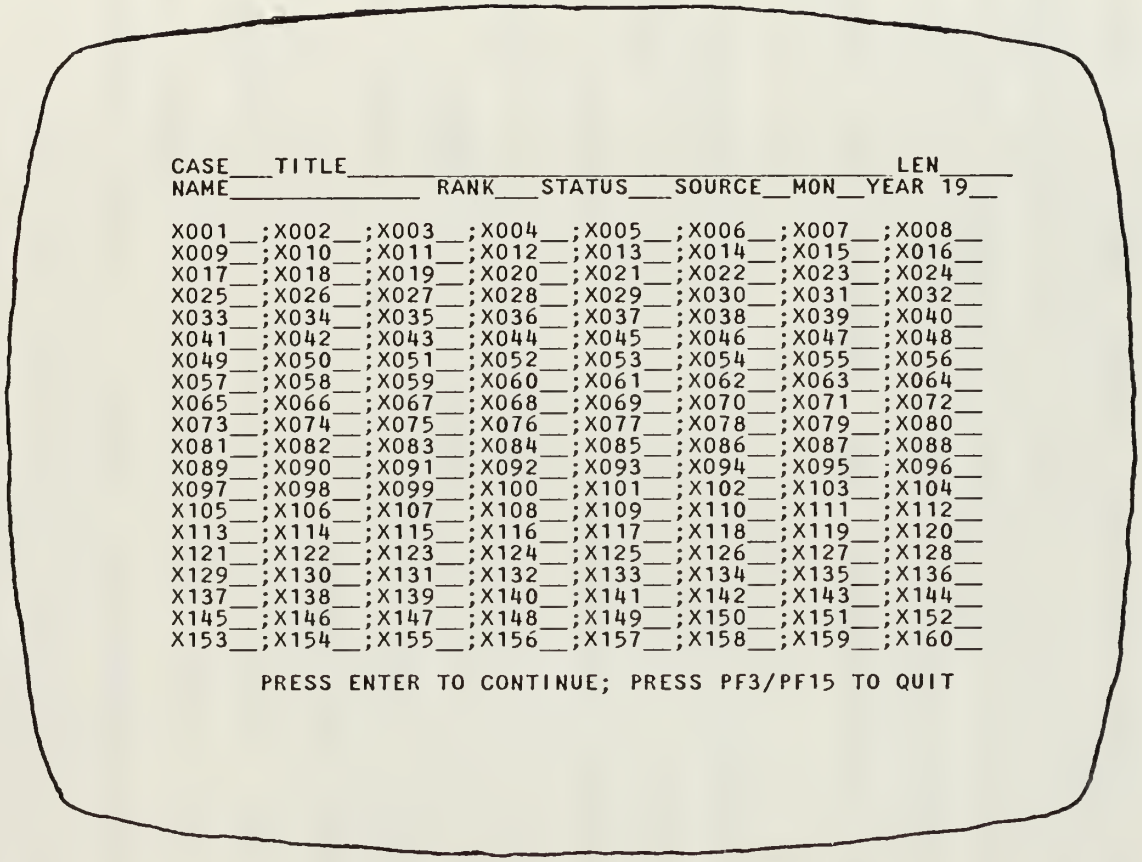

Figure 1. Input Screen Display

As an initial crosscheck of frequency, a monthly rate of mention was computed by year for each topic. This provides a quick indication of short-term reference. Only those trends indicated by numerous events, or those which were explicit in their content, were considered for analysis.

E. INITIAL FINDINGS

Upon initial data sorting, it became obvious that several of the selected themes had not occurred at any time in the three-year study period, and that others had received only sporadic attention. Reviewing this subset of topics (Appendix D, Topics Recorded in Less Than 1% of Cases), it is evident that some of them (such as Detente and Directed Energy Weapons) were not timely during the period studied. Some geographic areas, such as the Middle East and the Caribbean, were barely mentioned, apparently because of the editors' concern in other areas. The Koreas are mentioned primarily in regard to United States intervention against North Korea during the Korean War, but the current (at that time) conflict in Vietnam dominated interest in that part of the world.

Several topics dealing with warfighting techniques were conspicuously absent. Camouflage, Biological and Chemical Warfare, Maximum Use of Power, and Surprise had all received attention in the General Staff journal (Voyennaya M'ysl) used in compiling the original list of topics, but received

no mention in Morskoy Sbornik. Similarly, topics dealing with the Strategic Missions of the Armed Forces and the Navy were either infrequent or completely absent. Apparently the editors (or their superiors in the Main Political Administration) do not wish to discuss such items in a publication intended for general circulation.

Another curious absence was any reference to Nazis. Fascism and "Hitlerites" are discussed frequently, particularly in the context of the Great Patriotic War and Defense of the Motherland, but the term Nazi is either missing, or consistently mistranslated. This latter possibility is unlikely (the Russian word for Nazi is Natsist, and should be clearly recognized by a linguist), so it appears that the concept of the Great Patriotic War being the result of a political entity, particularly one calling itself the "National Socialist Party," is not acceptable. To label the war the result of Fascists, who are the political descendants of imperialists, is more in keeping with Leninist doctrine.

On the other end of the spectrum, three topics received the degree of attention which was expected.

The first of these, the Great Patriotic War of the Soviet Union, is an element of any Soviet publication dealing with the Soviet military or the history of the Soviet Union. In this case, the Great Patriotic War was mentioned in over 18 per cent of the readings. As Figure 2

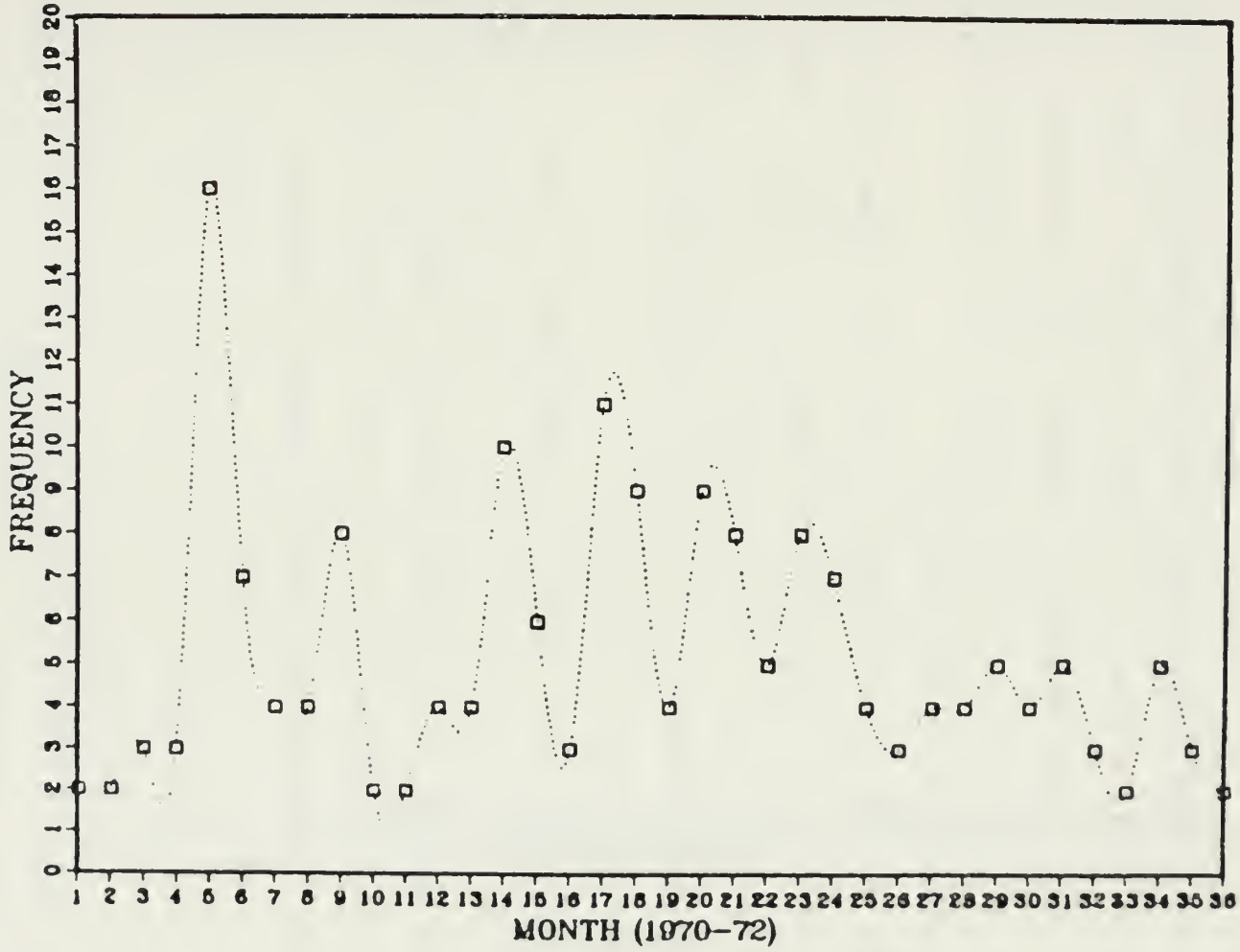

Figure 2. Great Patriotic War of the Soviet Union

shows, an irregular rate of mention is evident over the 36-month period. It is this irregularity which clearly demonstrates a degree of control over the content of Morskoy Sbornik.

Rather than displaying random references to the war, Figure 2 shows a peak of interest in month 5, which is May, 1970. This month marked the twenty-fifth anniversary of the defeat of Nazi Germany, and the May, 1970 journal was filled with references to that defeat.

The second twelve-month period of the same figure shows a cyclic pattern of quarterly interest in the war, again with a peak in May. By 1972, mentions of the war have levelled out somewhat, but again no month has more references to the war than May.

The second topic frequently mentioned reveals the truly political nature of this journal. As was previously stated, Morskoy Sbornik is published under the auspices of the Main Political Administration of the Army and Navy, which receives its direction from the Central Committee. Thus it should follow that the Communist Party of the Soviet Union would receive attention through this publication. As Figure 3 shows, this is clearly the case. Although references vary considerably in 1970, steady attention is given in 1971, with a peak in September of that year. Not surprisingly, September, 1971 marked the meeting of the 24th Congress of the Communist Party of the Soviet Union.

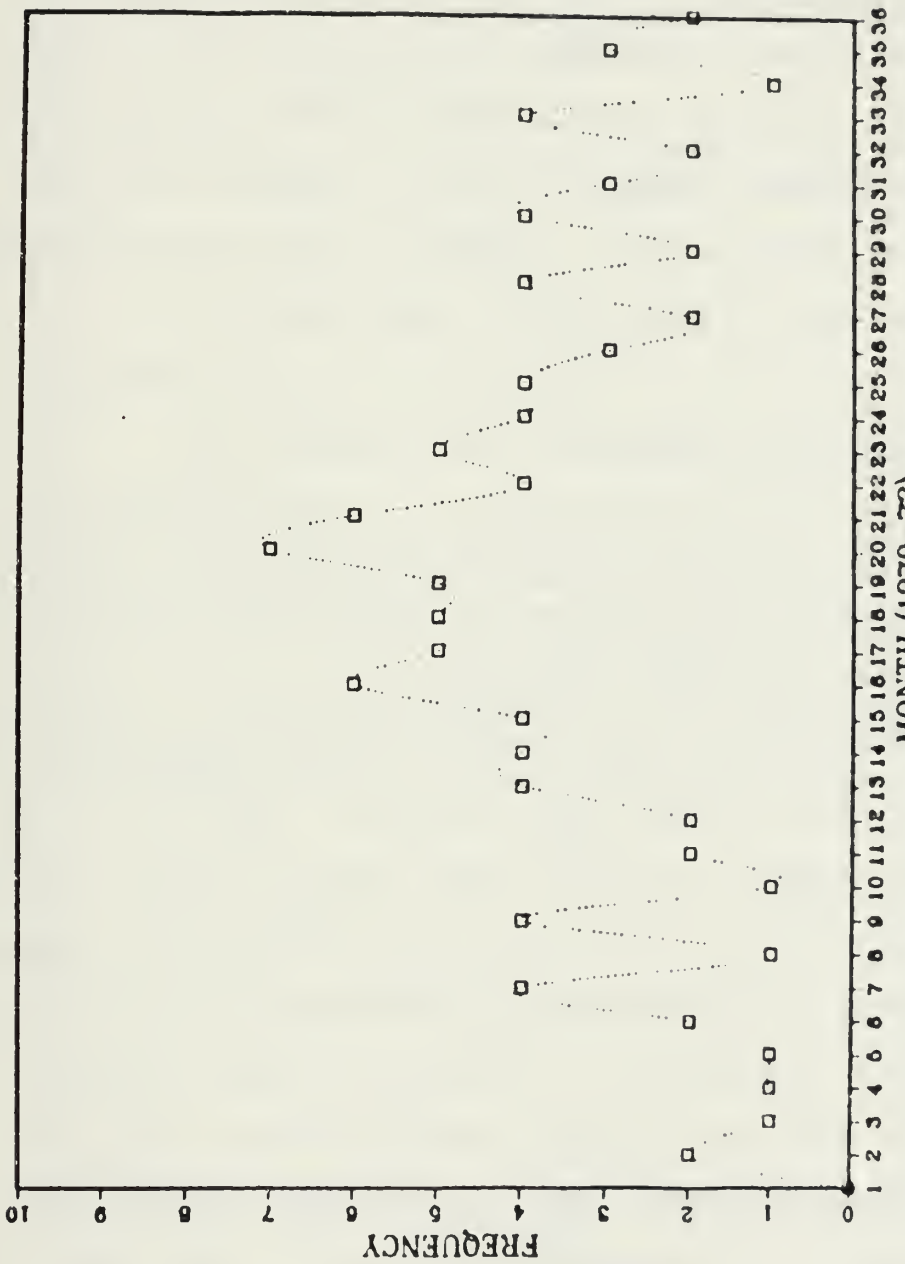

Figure 3. Communist Party of the Soviet Union

By examining these two themes, it can clearly be seen that strong editorship controls the content of articles published in Morskoy Sbornik. With this established, other trends can be examined in search of their significance.

The third topic receiving most frequent mention was Training. It would be expected that a professional naval journal like Morskoy Sbornik, which is intended for the readership of young military officers, and which is a means for dissemination of Party policy, must devote a considerable portion of its content to training matters. The Soviet Officer's Handbook puts it explicitly:

> "The training of servicemen . . . is organized and conducted in accordance with the policy of the Communist Party and the Soviet government on the basis of present-day military doctrine, orders of the Minister of Defense, military regulations, instructions and programs of combat and political training.
>
> "Its main task is to ensure a high state of constant combat readiness of units, ships and formations, and their ability to crush any aggressor who dares to disrupt the peaceful creative labor of our people." [Ref. 5:p. 88]

Figure 4 reveals a fairly steady rate of mention (more so than the previous two topics, which had specific events to weight them). By plotting the references to training on a yearly basis, however, an interesting pattern emerges. Again, rather than the apparent random mentions seen in Figure 4, Figure 5 shows a cyclic, although imperfect, pattern. What can be stated on the basis of this graph is that training receives high emphasis at the beginning of the calendar year, drops off during the first quarter, has a low

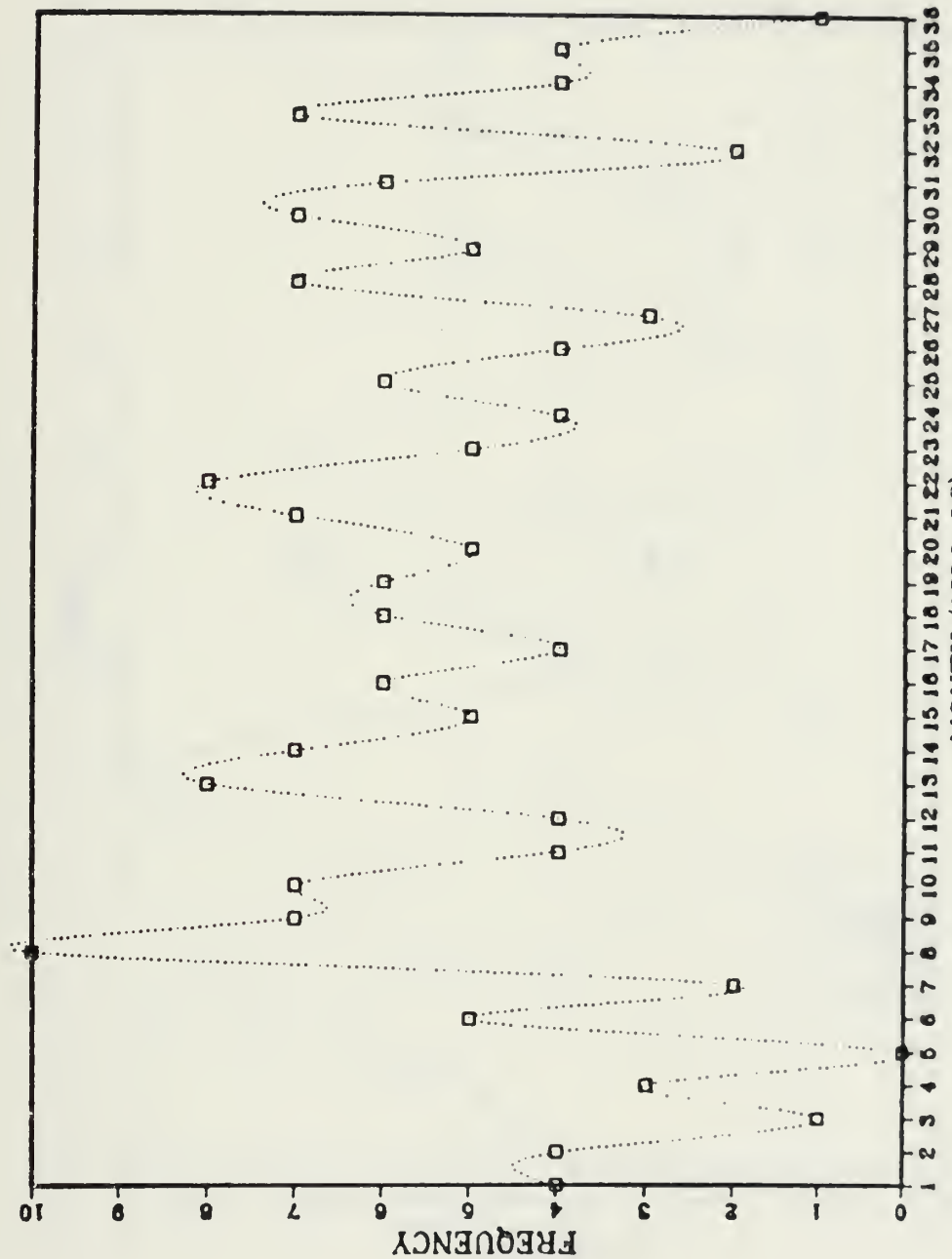

Figure 4. Training

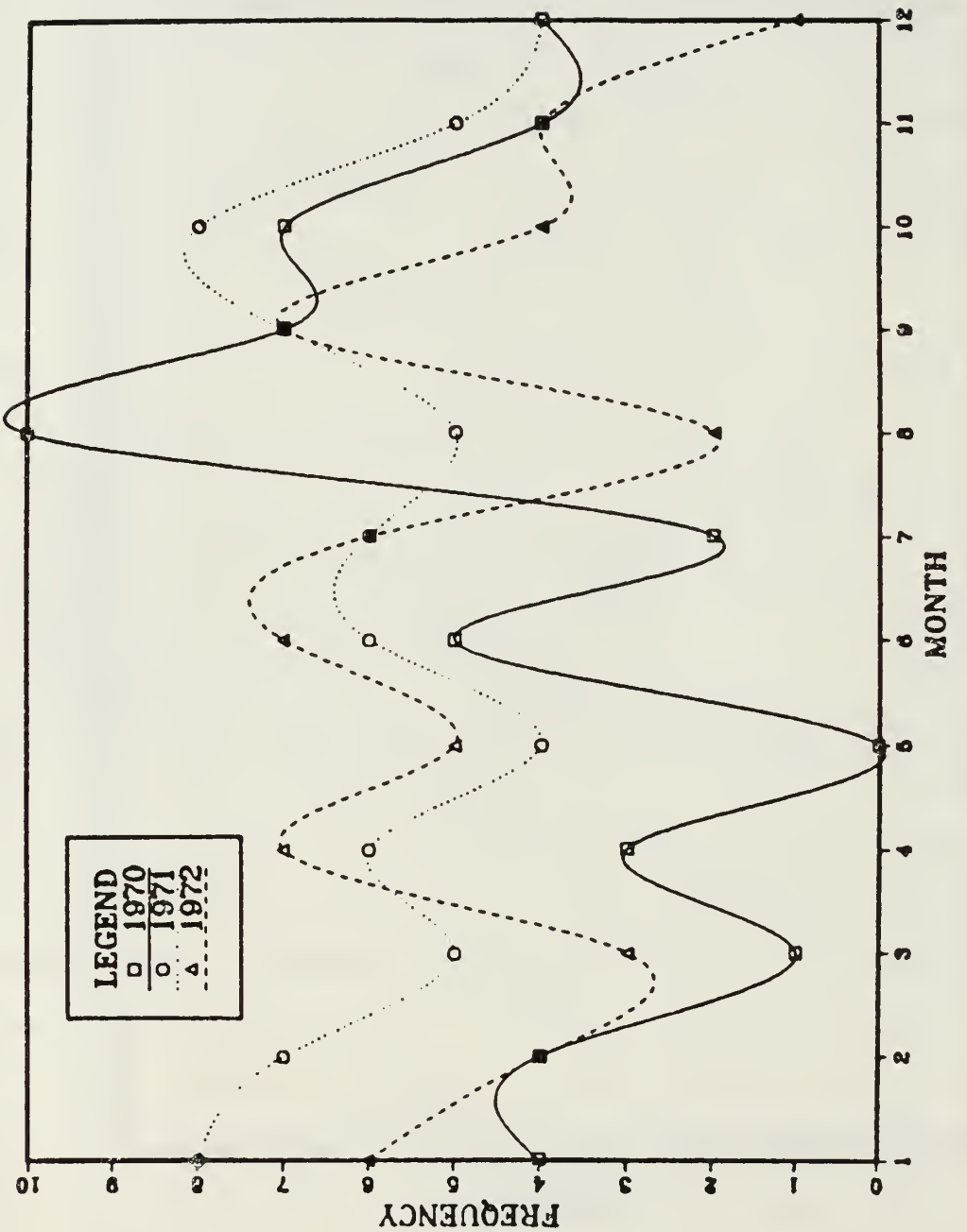

Figure 5. Training Cycle

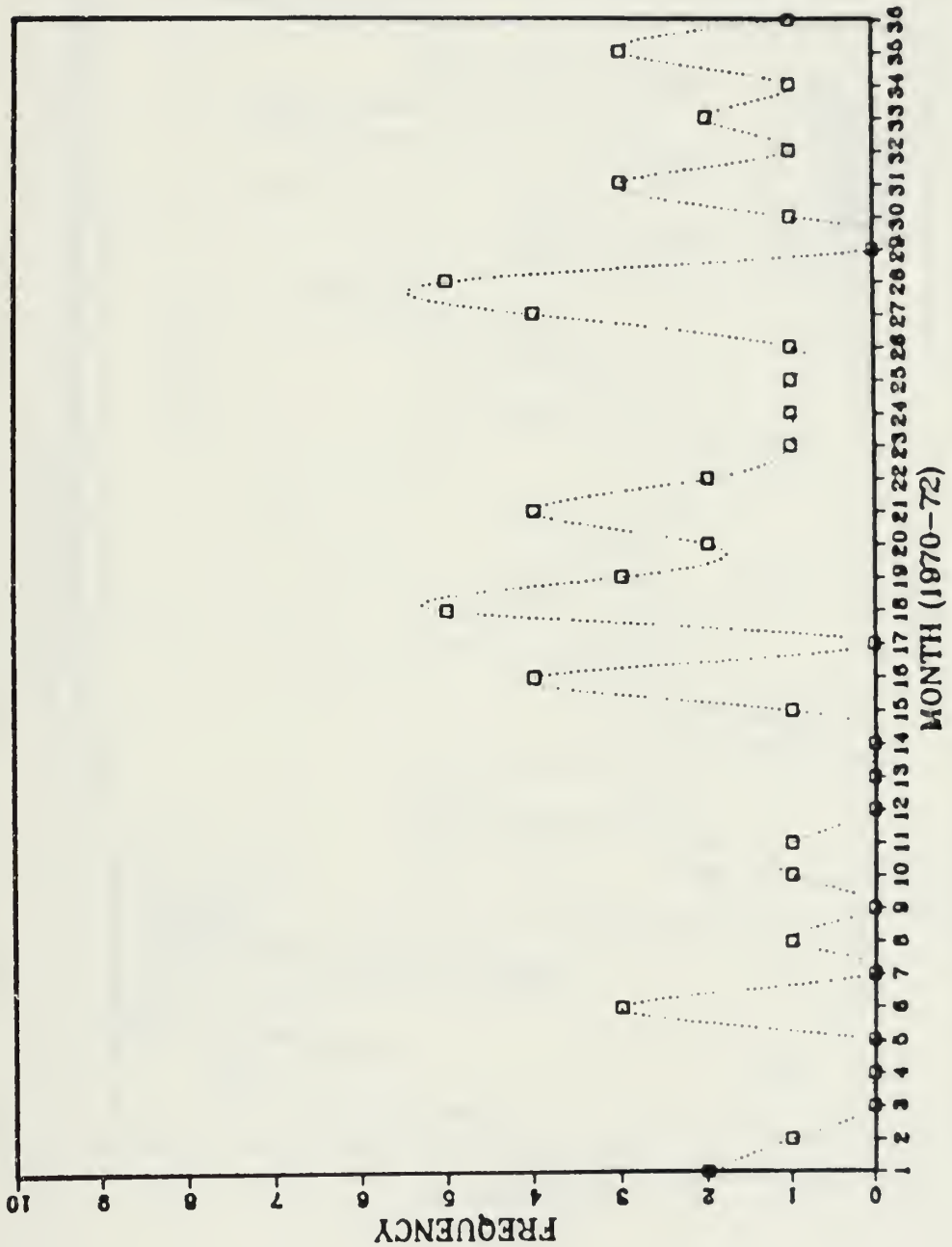

Figure 6. Readiness

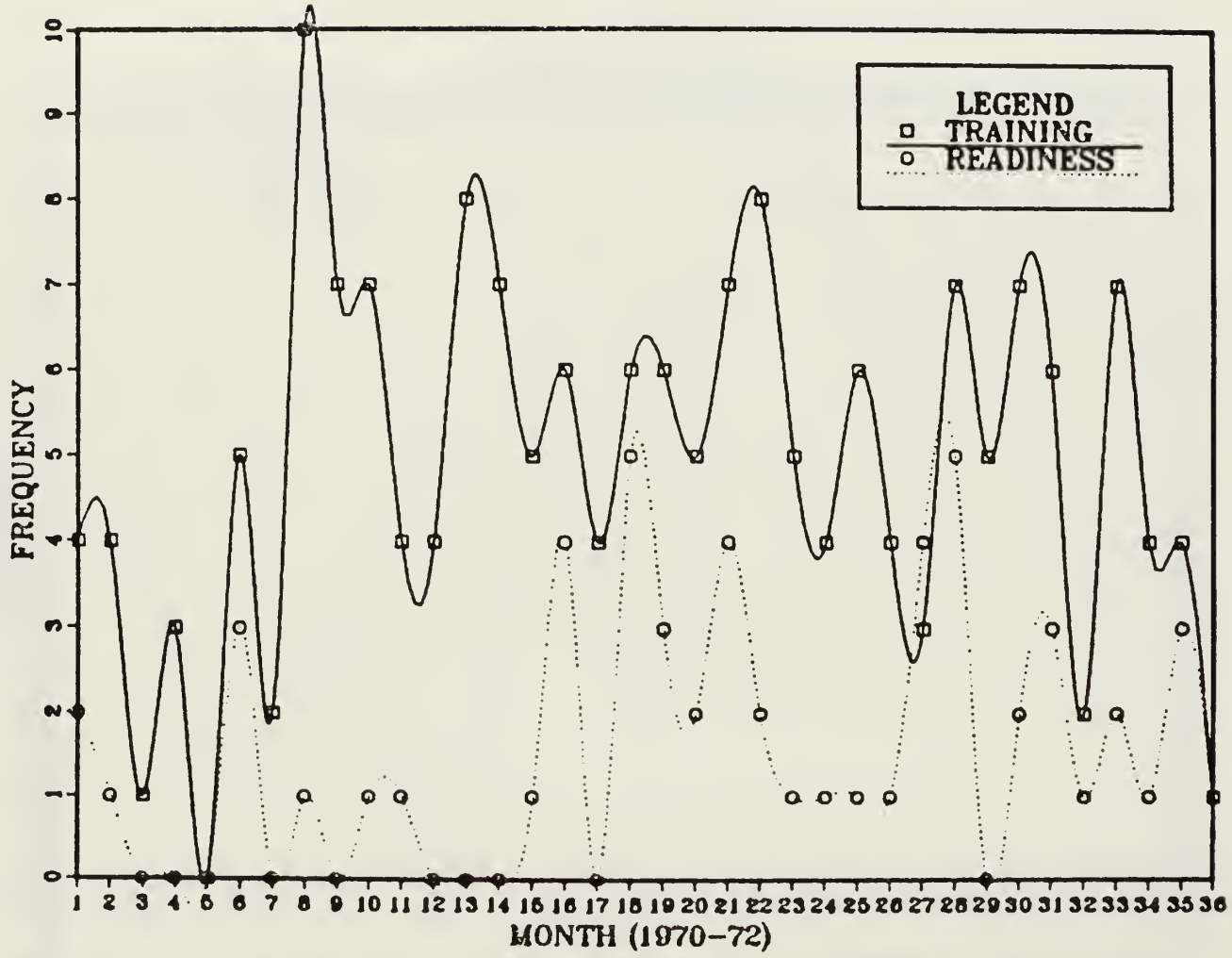

Figure 7. Training/Readiness

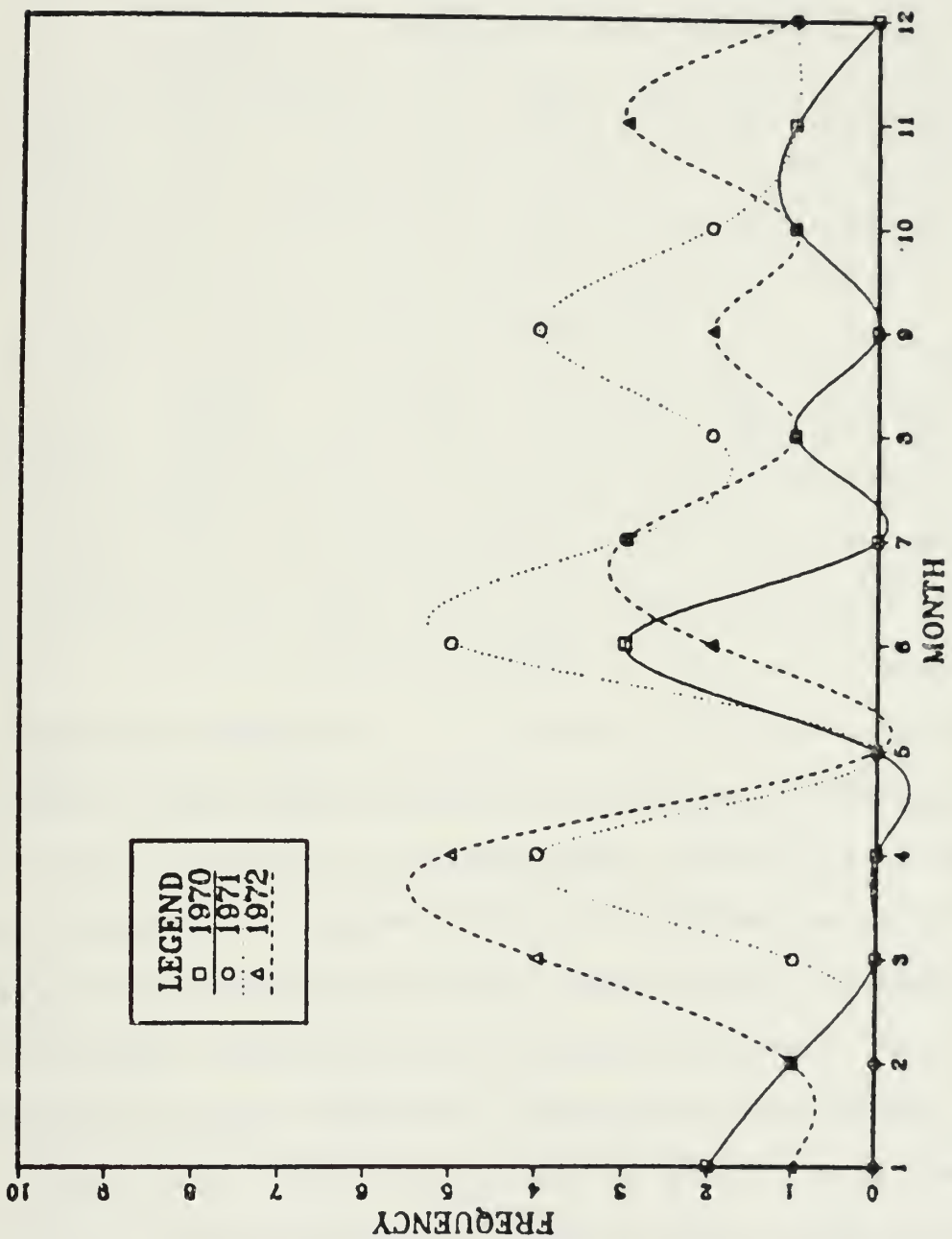

Figure 8. Readiness Cycle

point in May (perhaps due to emphasis on historical events), reaches a high point between August and October, and diminishes again in the last quarter. If the August, 1970 peak is rejected as an outlier, then April, June, and October are shown as times of emphasis in training.

While this conclusion might at first seem suspect, it is supported by the data on Readiness, which, as the previous quotation shows, is considered a product of training by the Soviets. While the long-term stability of references to readiness (Figure 6) is not as stable as that of training, the two do show some parallels (Figure 7). Again, it is the yearly breakdown which is most revealing; as Figure 8 shows, May of each year had zero references (akin to the May low point for training), while April and June are relatively high points (again with a single outlier).

In addition to being supported by other data from the same analysis technique, the cycle described also coincides with the Soviet Army's conscription and training cycle, which brings new recruits into the service in January, trains them for primary exercises in the spring, relaxes for the month of victory celebrations in May, then builds up to a major exercise in the autumn, after the harvest has been collected.

Having demonstrated that thematic measurement of topics can provide an insight to editorial concerns, the next chapter contains specific evaluation of common topics.

III. EVALUATION OF DATA

The large number of themes studied provided a wide range of recorded frequencies, from zero (as shown in Appendix D) to a high of 184 in the case of the Great Patriotic War of the Soviet Union, meaning that this war was mentioned in 18.4% of all the articles screened. A tabulation of themes vs. frequency is provided in Appendix E.

In this chapter, selected topics dealing with political, geographic, and military fields will be examined. The ability of the methodology being evaluated to alert the analyst to changes in emphasis, and to cue the observer to unusual occurrences will be shown.

A. POLITICAL TOPICS

The personalities of political leaders in the Soviet Union are as varied as the lands they come from. V. I. Lenin, who was of mixed Russian-German blood, cannot be equated with Nikita Khrushchev, a Great Russian raised in the Ukraine. Likewise Josef Stalin, a Georgian, was different from the leaders of the present government.

An even more sensitive element is that of political acceptance by the rulers at any given time. Stalin, as was shown in Chapter 1, was the only source of Soviet doctrine during his rule. However, following his death and

denunciation by Khrushchev in 1956 [Ref. 25:p. 572], Stalin was no longer a suitable source for political guidance. Distaste for his memory even called for removal of his body from Lenin's Tomb, where it had lain since his death.

Journalistic references can provide a clue to the propriety of certain topics. As has been stated, for example, the Nazi Party of Hitler's Germany is taboo in certain contexts, although Hitler himself can be discussed. An analysis of references to past leaders of the Soviet Union is similarly enlightening.

As the founder of the Soviet state, and the only member of the Soviet political "trinity" (where he appears with Karl Marx and Frederick Engels) to have any Russian blood, V. I. Lenin is singularly revered in the U.S.S.R. His tomb in Red Square in Moscow is a mecca to Communists, and his prolific writings are used to provide legitimacy to national policy. Figure 9 shows what, at first look, is an irregular rate of reference to Lenin, but this is nonetheless revealing. The strong peak in April, 1970 far surpasses that of any other personality examined, and stems from the celebration of the 100th anniversary of Lenin's birth that month.

Overlaying the references to display a yearly cycle (Figure 10) shows peaks each April, with a secondary peak in February. This secondary peak coincides with the annual celebration of the Day of the Soviet Armed Forces, marking the first victories of the Lenin's Bolsheviks.

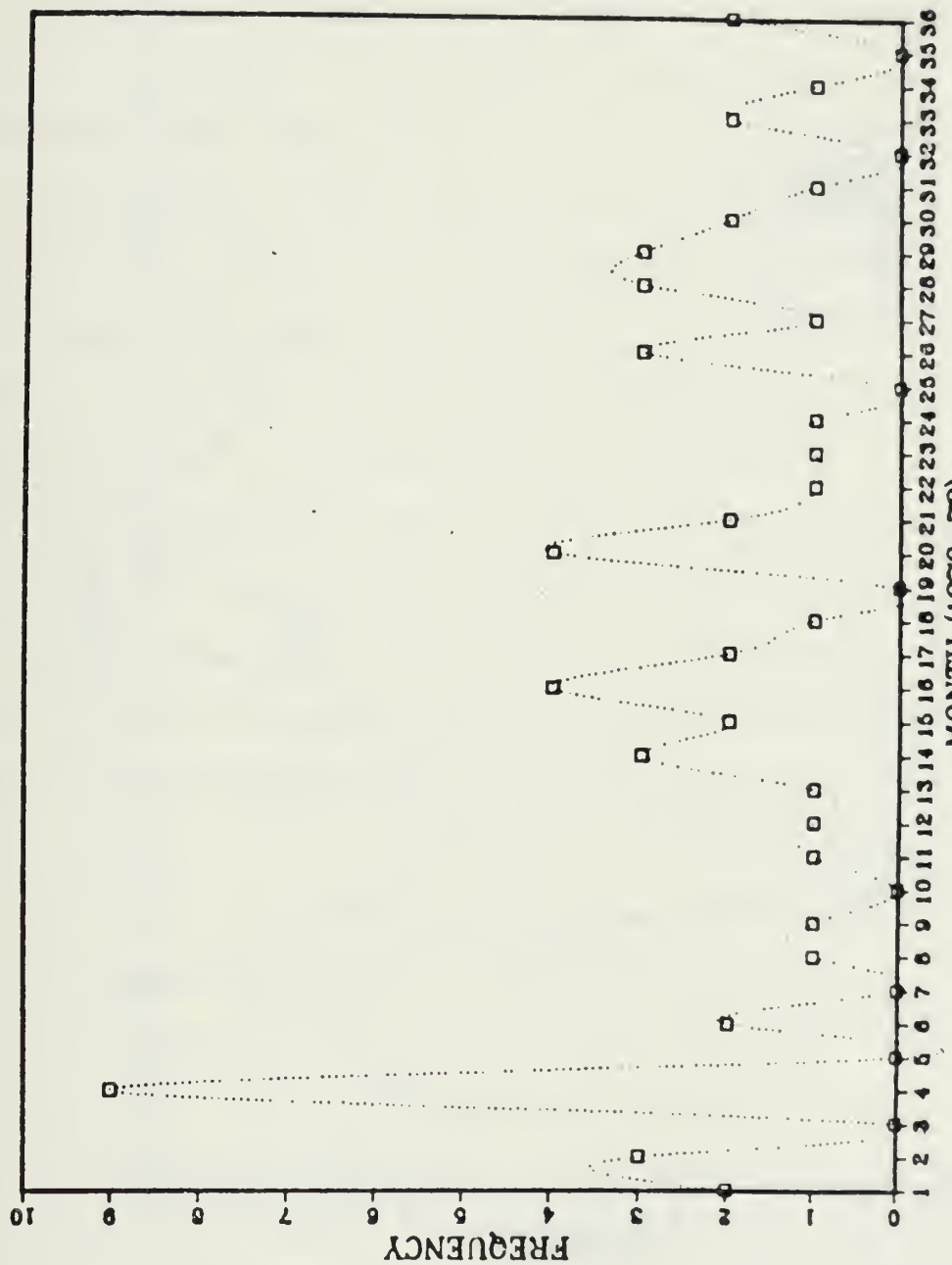

Figure 9. V. I. Lenin

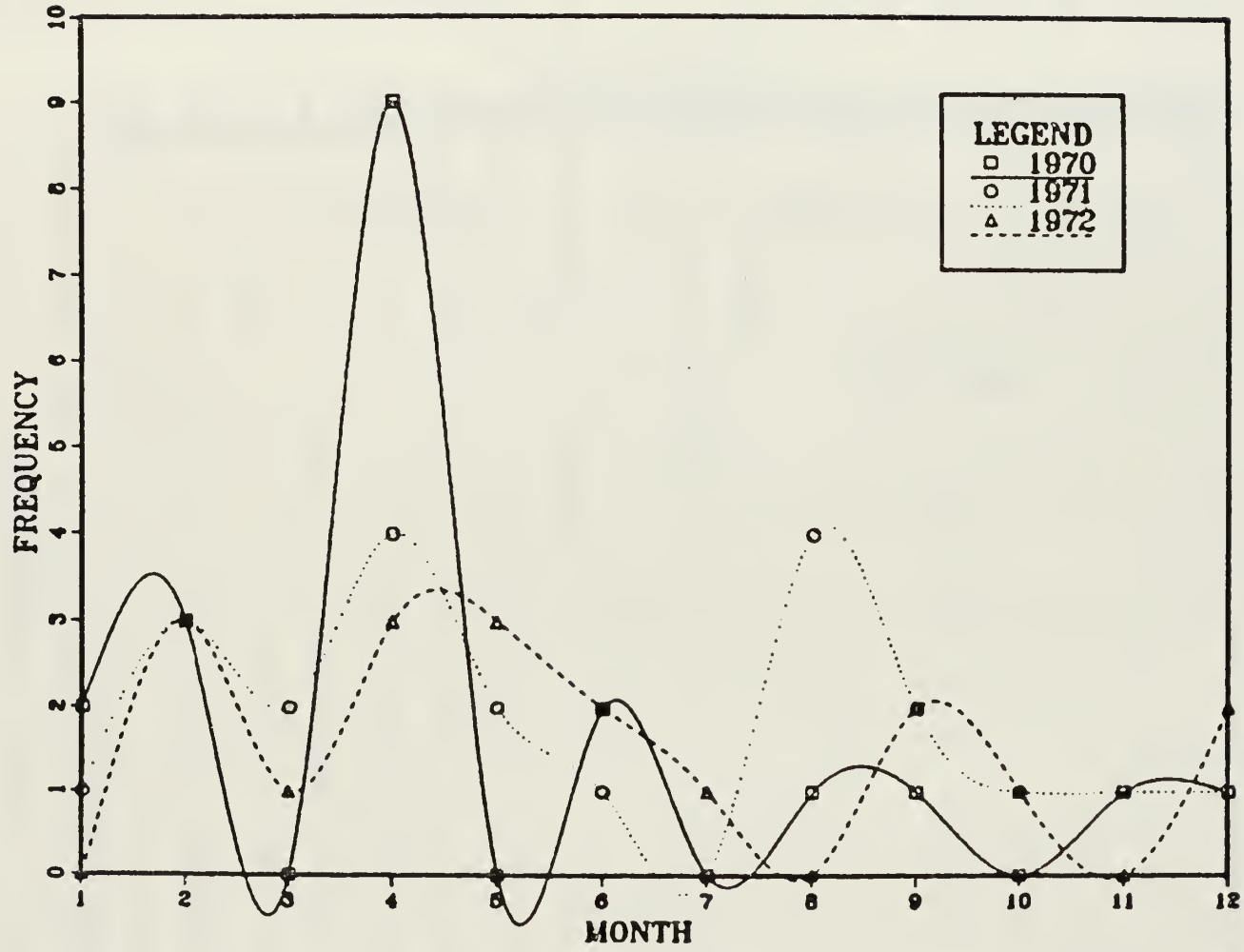

Figure 10. Lenin Cycle

Going on to Lenin's successor, it appears that memories of Stalin's rule were strong enough during the three years studied to prevent his mention, despite the 25th anniversary of the end of the Great Patriotic War. His name did occur once, in December 1971, but only in reference to an icebreaker named after him.

Reappearance of references to a personality such as Stalin, as occurred in the later 1970s, could indicate significant changes in Soviet policy. Leonid Brezhnev's "rehabilitation" of Stalin caused great concern in the West, as would Western revisionism of Hitler's deeds.

Nikita Khrushchev did not even receive as much attention as Stalin, being completely absent from any mention in the period studied. Given his dislike of naval forces, the naval authors of Morskoy Sbornik probably feel no obligation to preserve his memory, and the Party leadership did not see fit to keep his memory alive.

Early results of this study indicated that Leonid Brezhnev would similarly be excluded from mention, with no mention of him at all in 1970 and only a single reference in the first half of 1971. Beginning in July of that year, however, and coincidental with preparations for the 24th Party Congress, frequent references established Brezhnev as a common fixture to Morskoy Sbornik. Only after Brezhnev had been established as the Party spokesman to the Navy did mention of the Soviet duty to "defend the gains of

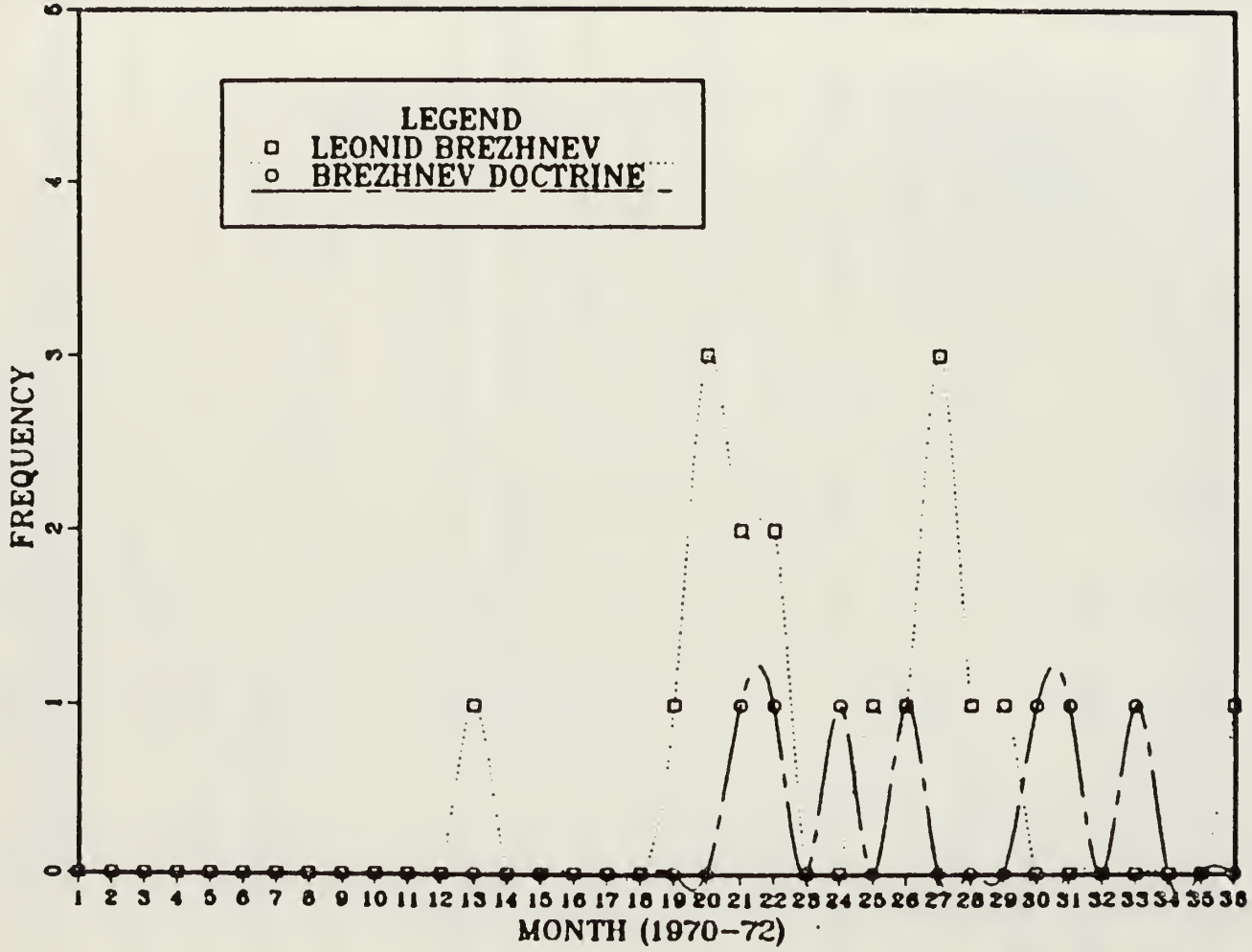

Figure 11. Brezhnev/Brezhnev Doctrine

Socialism," known to the West as the Brezhnev Doctrine and established at the 24th Party Congress, appear (Figure 11).

Departing from discussions of persons, a study of political organizations reveals deliberate variance of frequency of mention over time. As was shown in the last chapter, the driving force behind the Soviet government and military, the Communist Party of the Soviet Union, received special treatment in Morskoy Sbornik before and during the 24th Party Congress. Another organization, the Communist Youth League, Komsomol (Figure 12), does not show the steady climb and fall shown by the CPSU in Figure 3, but rather shows an obvious absence in 1970 followed by more regular mention in 1971 and in 1972, the year of the fiftieth anniversary of Komsomol sponsorship of the Soviet Navy. From a mere three mentions in 1970, frequency climbs to 27 in 1971 and holds relatively constant at 26 in 1972.

The low frequency of mention in 1970, coupled with the relatively static number of references during the anniversary year of 1972, seems to indicate that no specific effort is made to ensure attention to this organization. Although the majority of Soviet sailors (80%) are Komsomol members, only 20% of officers belong [Ref. 2:p. 277], due in part to the greater age of officers, who have likely become Communist Party members. It appears that Morskoy Sbornik is oriented more to officer readership.

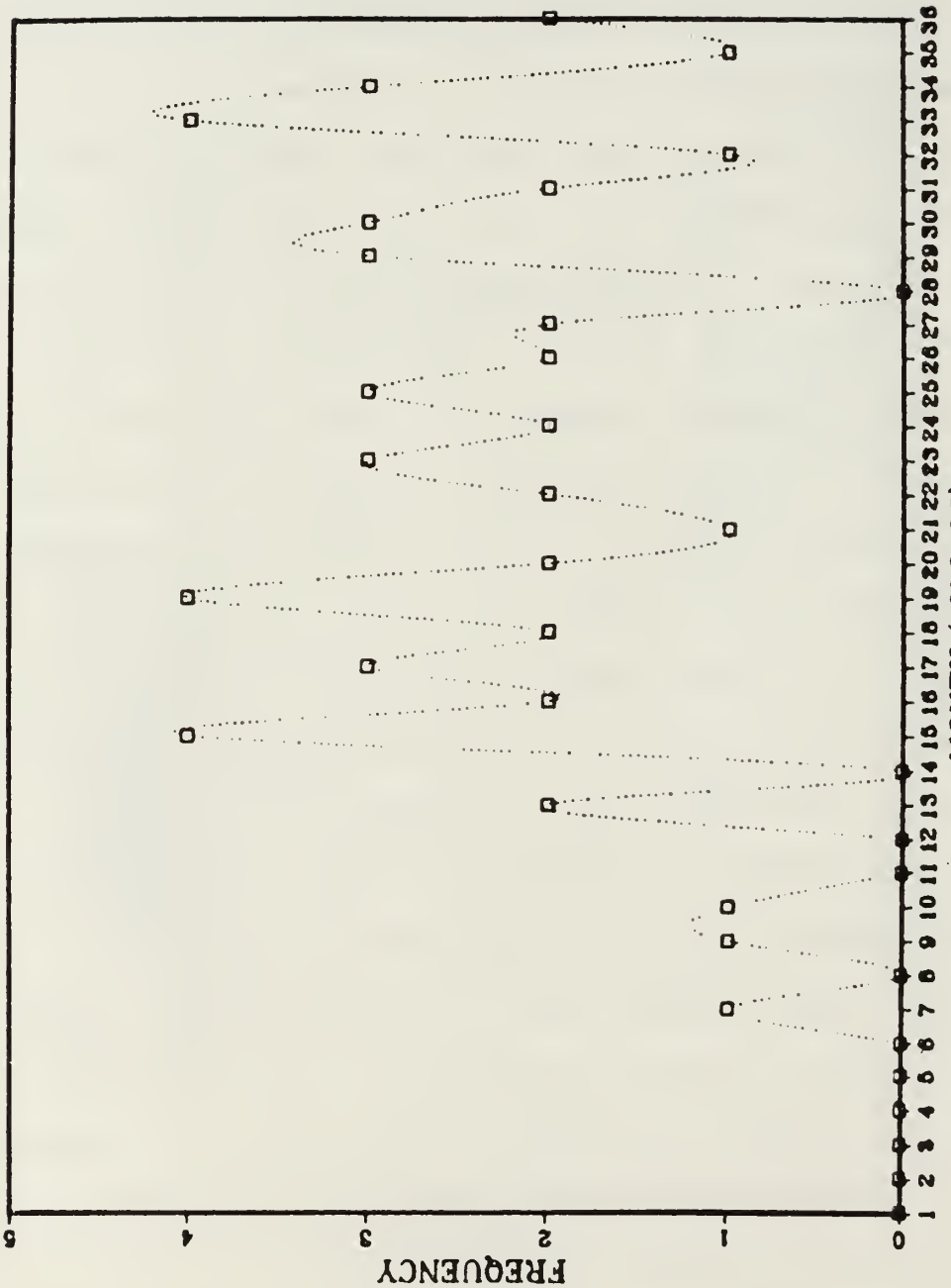

Figure 12. Komsomol

The antithesis of Communism, Fascism, receives slightly more attention than the Komsomol over the three-year period, with an average monthly mention of 1.72 and a mode of 2. The greatest deviation from this mode, as shown in Figure 13, begins in May, 1971 and ends in May, 1972. This coincides with a deviation in the frequency pattern of a topic the Soviets closely associate with Fascism, the defense of the Soviet motherland (Figure 14). Referring back to Figure 3, it can be seen that this period equates to the time of highest reference to the Communist Party, which had been brought about by the 24th Party Congress in 1971. As was said, this congress first introduced the policy of the defense of the gains of Socialism (the Brezhnev Doctrine), and invocation of past enemies (Fascists) and the need for preservation of the Socialist motherland support this policy.

It can be seen that several themes may be interrelated. A more complete data set, such as could be compiled if all the published articles had been translated and made available for evaluation, could better reveal these interrelations using factor analysis.

B. OCEAN AREAS

Any discussion of a Navy journal must touch on the subject of the world's oceans. Trends displayed by data analysis in this area are not as obvious as those seen in

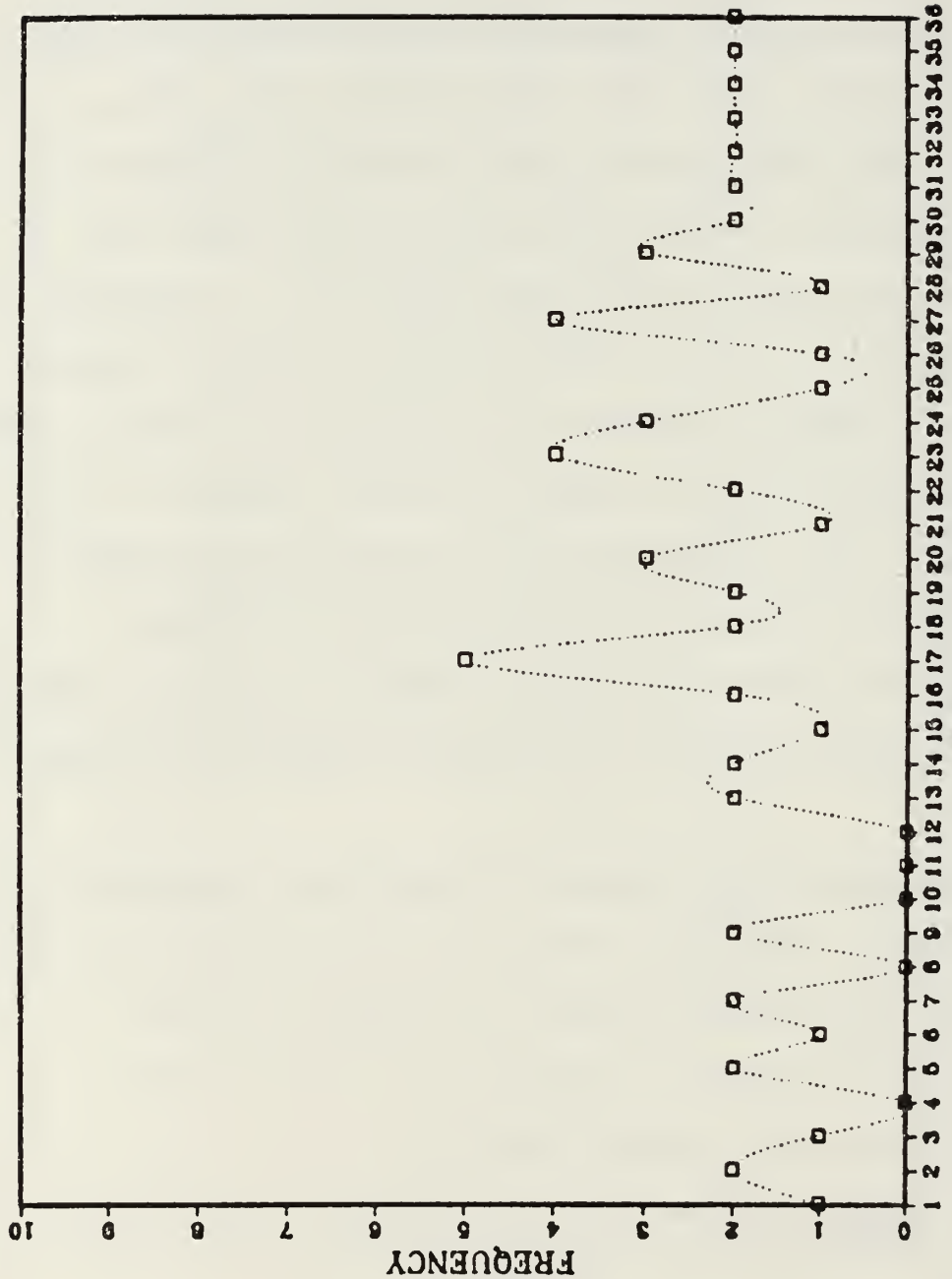

Figure 13. Fascism/Fascists

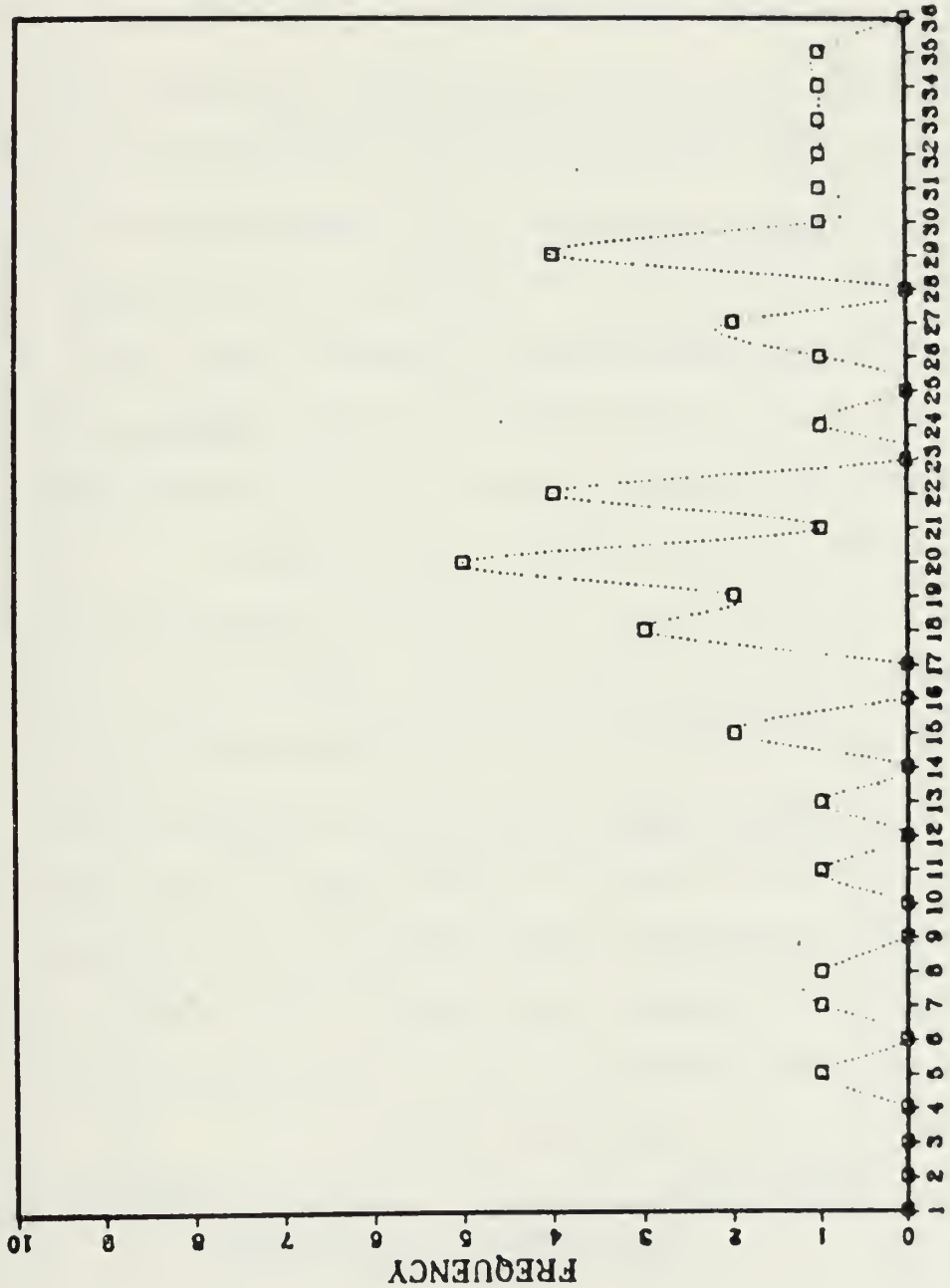

Figure 14. Defense of the Soviet Motherland

prior examples, but some concerns are nevertheless revealed. The relative frequencies of mention among the oceans, as percentages of total ocean/fleet references, are shown in Figure 15.

Among those areas which show little variation over the study period, the Atlantic Ocean and the Black Sea (Figures 16 and 17) are most consistent. The Mediterranean (Figure 18) shows annual increases, reflecting the increasing Soviet concern shown by their increased presence there (Ref. 26]. Although the number of ship-days the Fifth Eskadra spent in the Mediterranean dropped slightly in 1972, awareness of the area, as seen in Figure 18, did not diminish.

The Baltic Sea (Figure 19) shows an interesting increase in frequency from May, 1971 to April, 1972, again roughly corresponding to peaks seen with the Communist Party, defense of the Motherland, and Fascism. Rereading the articles in which the Baltic was mentioned, it was seen that several of the references dealt with Naval preparations forthe 24th Party Congress, particularly with the cruiser AVRORA, a relic of the October Revolution which was the first ship to fire on the Winter Palace.

The ability of binary thematic content analysis to point out peculiarities in data, as seen here, serves as a tipoff to the analyst, who can then concentrate his in-depth research efforts.

Figure 15. Comparative Mentions of Oceans/Fleets

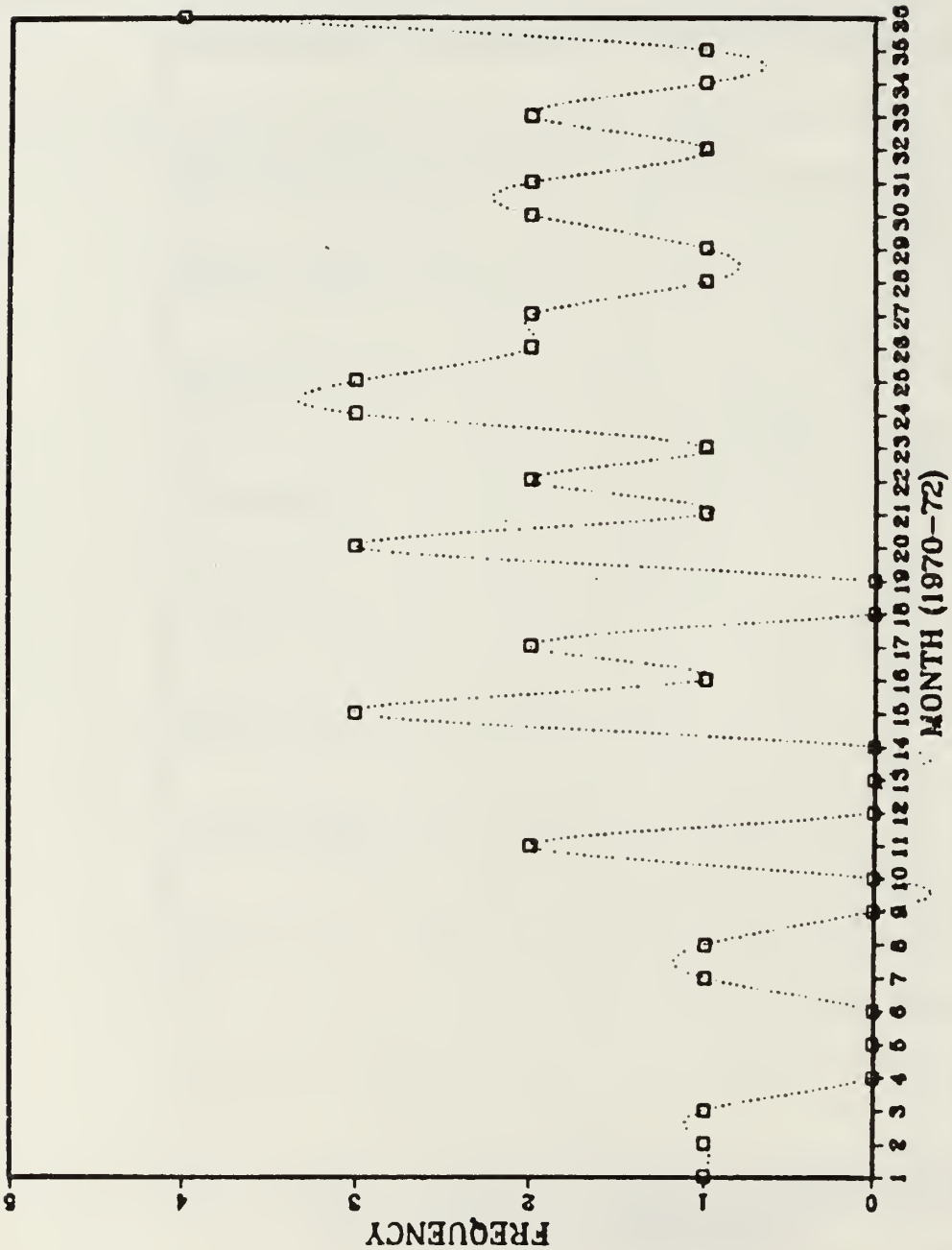

Figure 16. Atlantic Ocean

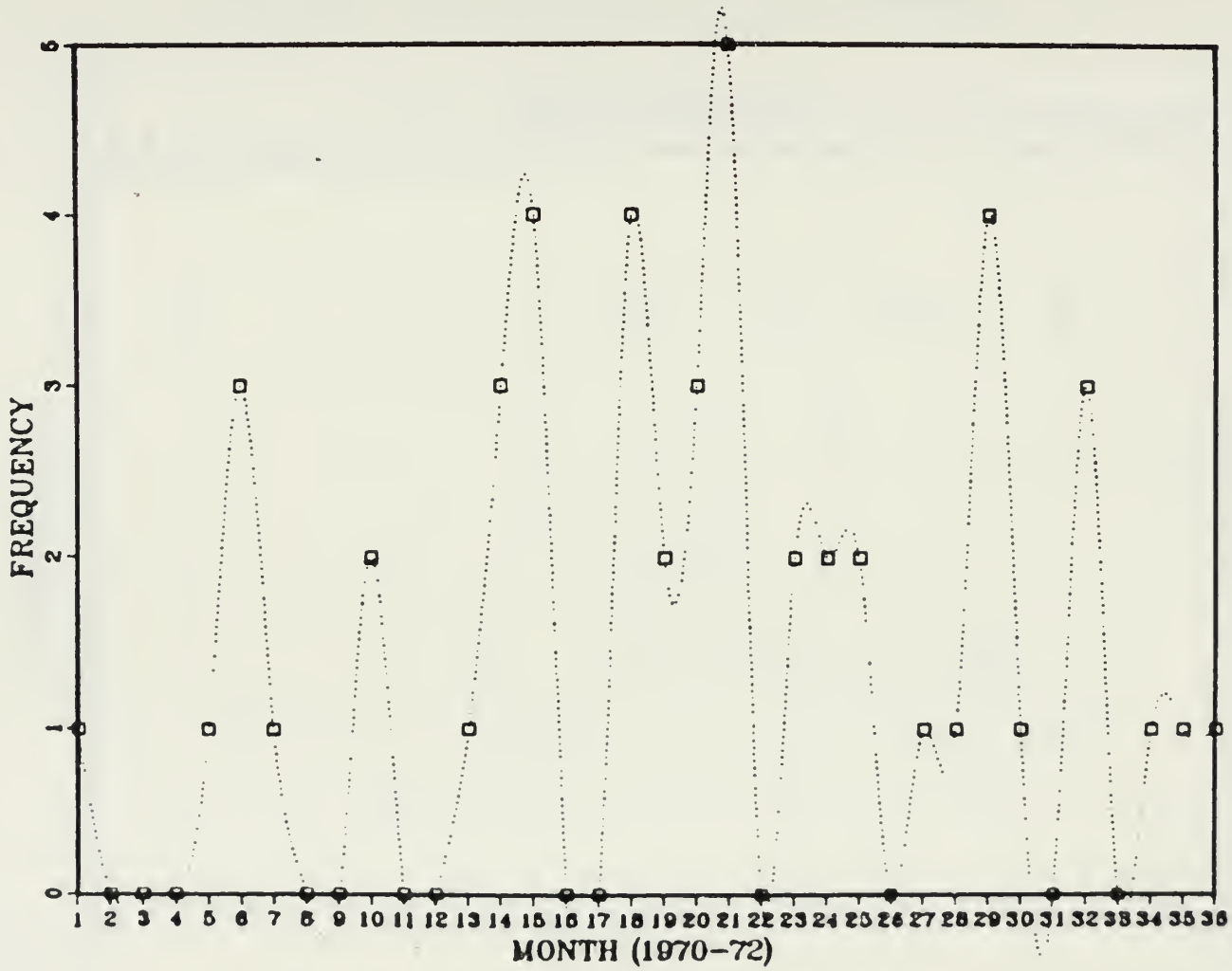

Figure 17. Black Sea/Black Sea Fleet

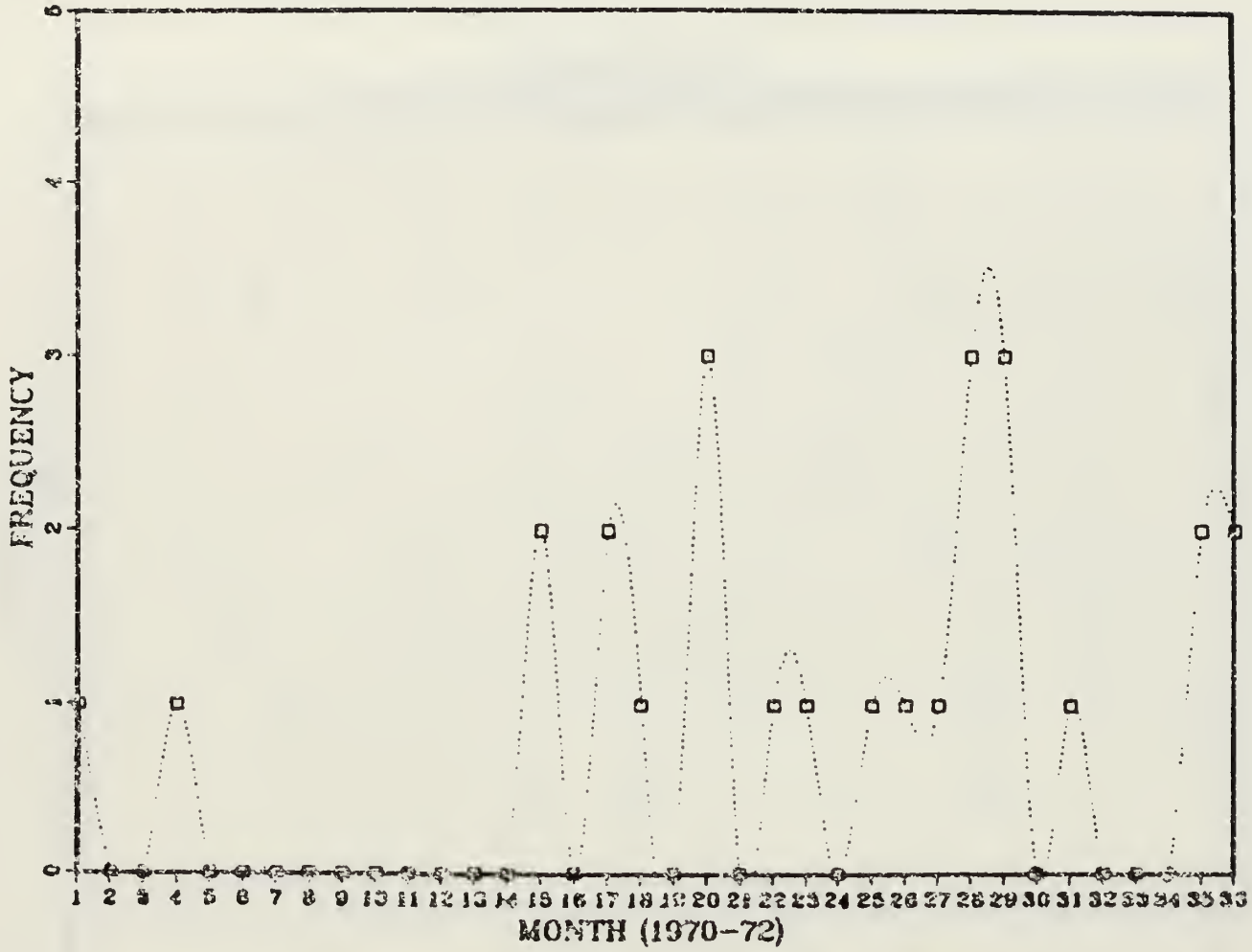

Figure 18. Mediterranean Sea/Fifth Eskadra

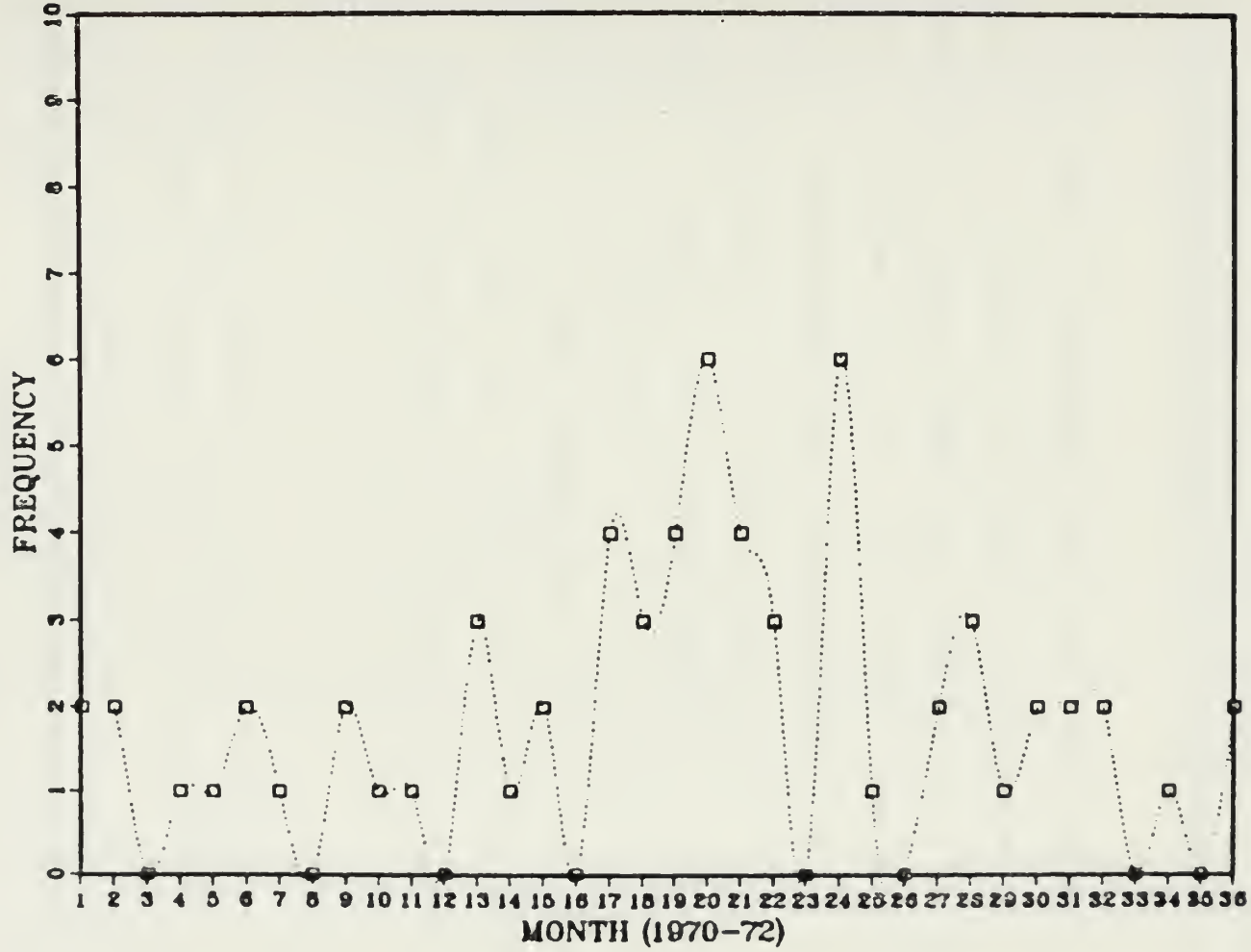

Figure 19. Baltic Sea/Baltic Fleet

Interestingly, the Baltic Sea and Baltic Fleet received more mentions than any other ocean and fleet. Explanation of this is due in part to the fact that many of the contributors to Morskoy Sbornik are from the Soviet military academies, which are concentrated around Leningrad on the Baltic.

The Indian Ocean received relatively few mentions over the 36 months studied (18 total, or inclusion in less than 2 per cent of all articles), but these reveal an increasing need for awareness of the area. The only mention in 1970, dealt with the "International Legal Regime of the Coastal Waters of the Indian Ocean" [Ref. 27], a description of rules for safe navigation in this area. Figure 20 shows a substantial increase in 1971, including articles which deal more directly with U.S. involvement there. One of these, "The Pentagon Fills the 'Vacuum'" [Ref. 28], gives a description of the planned naval construction at Diego Garcia, two years before the first U.S. facility there was commissioned.

The increased attention to the Indian Ocean shown in Morskoy Sbornik was shown in more concrete terms the following year, when Soviet Navy ship-days there more than doubled (approximately 9,000 ship-days in 1972, compared with 4,000 in 1971) [Ref. 26:p. 43].

Sometimes the presence of a single peak signifies a notable event, as in the cases of the Great Patriotic War

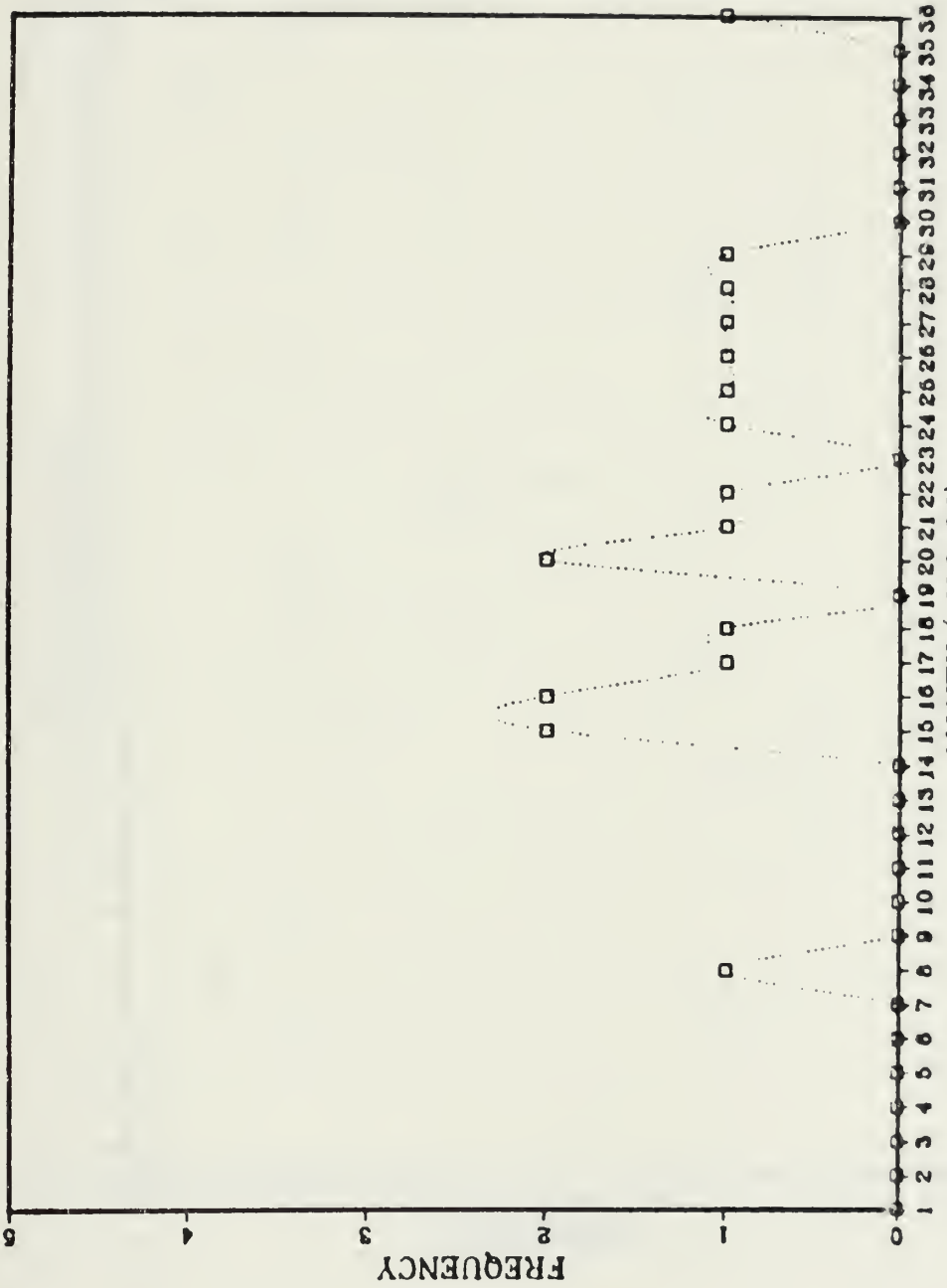

Figure 20. Indian Ocean

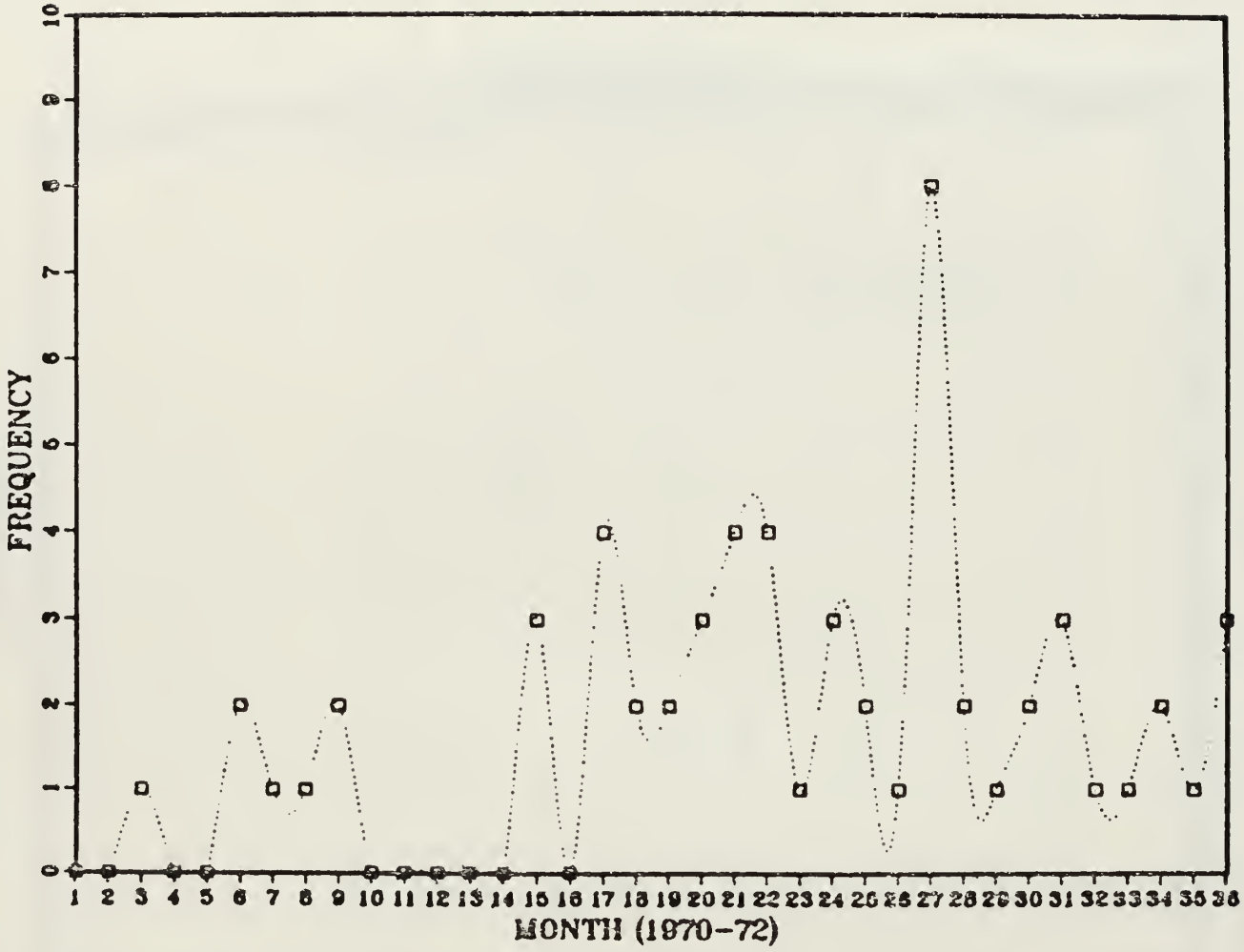

Figure 21. Pacific Ocean/Pacific Fleet

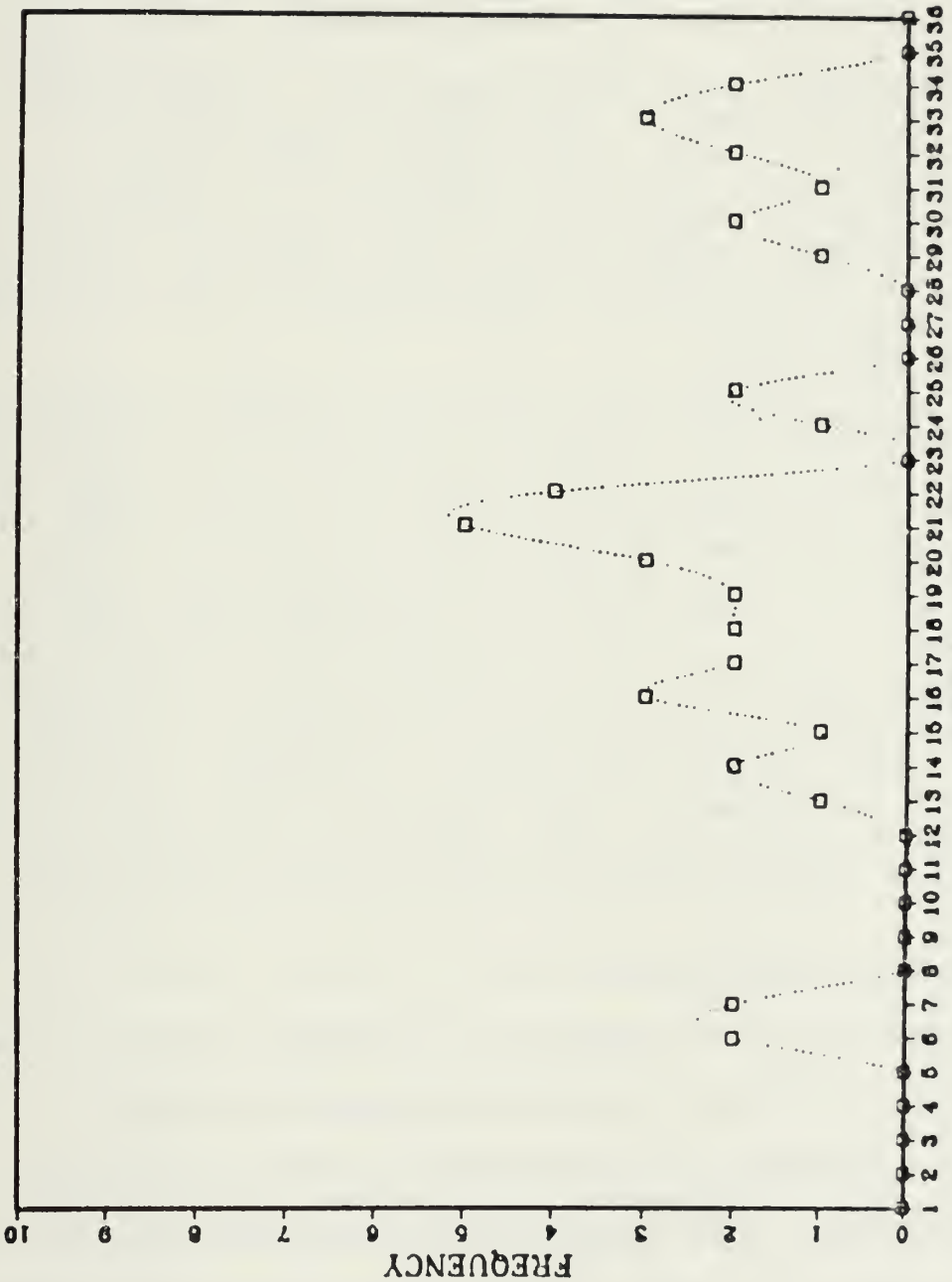

Figure 22. North Sea/North Sea Fleet

and the Communist Party (Figures 2 and 3). However, in the case of the Pacific Ocean (Figure 21), the peak in August 1972 is inconsistent with any other data concerning Soviet naval activities. Removing it as an outlier for further analysis, 1971 and 1972 have monthly averages of 2.17 and 1.72, well within one standard deviation (1.2605) of the mean for those two years. This implies that little variation occurred after 1970, a fact which is borne out by the recorded stabilization of Pacific Fleet size following 1971 [Ref. 26:p. 84].

The North Sea/North Fleet data also showed a confusing rise in references during 1971 (Figure 22), this time over a longer period of time. In this case, as in that of the Baltic, review of identified articles showed that most of the increase was due to the preparation for the 24th Party Congress. This close association of the Baltic and North fleets with the Communist Party suggests strong ties between these fleets and the physical defense of the Soviet Union.

C. WARFIGHTING TECHNIQUES

No other topics dealing with warfighting receive as much attention as do submarines and antisubmarine warfare.

Admiral Gorshkov's faith in the submarine as a combat platform has been well reported over the years, and in addressing the improvement of naval forces and equipment, submarines are his first priority [Ref. 29:p. 239]. For

this study, submarines were categorized as either attack, or nuclear-powered ballistic missile-firing submarines. While this excludes the early diesel-powered ballistic missile subs, preliminary study had shown such references to be extremely rare.

The first category is mentioned at least once 35 out of 36 times (Figure 23), and shows an overall increase in frequency. September, 1971 had the highest frequency of mention, and that issue had eight articles specifically dealing with submarines, showing a deliberate effort to bring them to the readers' attention. The next-highest month, May of that year, had only four specific articles, the rest of the mentions being in articles concerned primarily with other topics.

References to SSBNs were more erratic, with 11 months containing no reference to them at all (Figure 24). Many of the references which did occur were to American missile submarines and the threat they posed to Soviet freedoms.

The combined values for submarines and SSBNs, shown in Figure 25, show a period of increased attention beginning in early 1971 and continuing through most of 1972. This period coincides with a period of increased concern with antisubmarine warfare shown in Figure 26. As can be seen, beginning in 1971 no month went by without at least one reference to ASW. Talk of hunting "enemy" submarines, without any specific identification of who that "enemy" was,

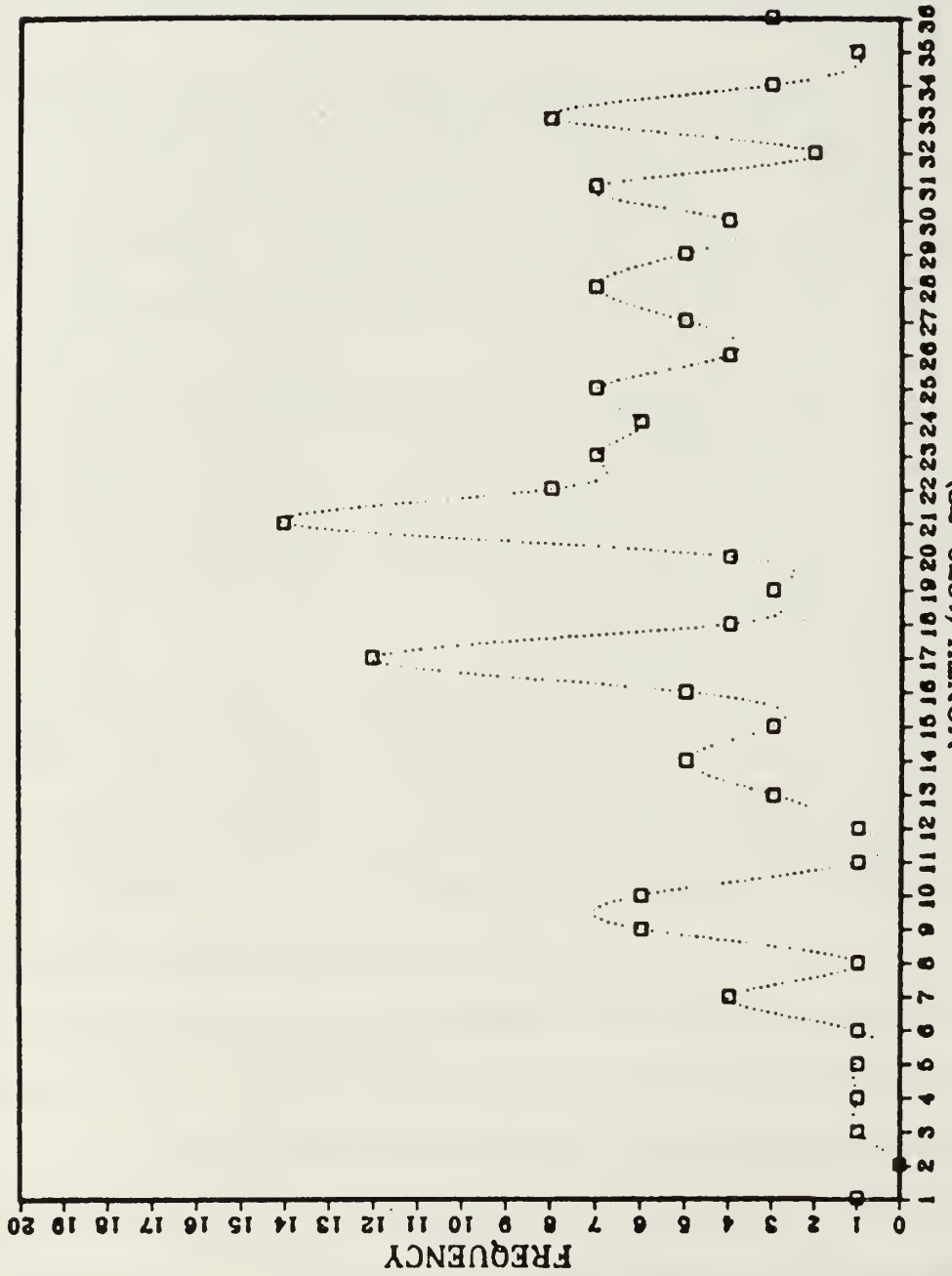

Figure 23. Submarines (Other Than SSBNs)

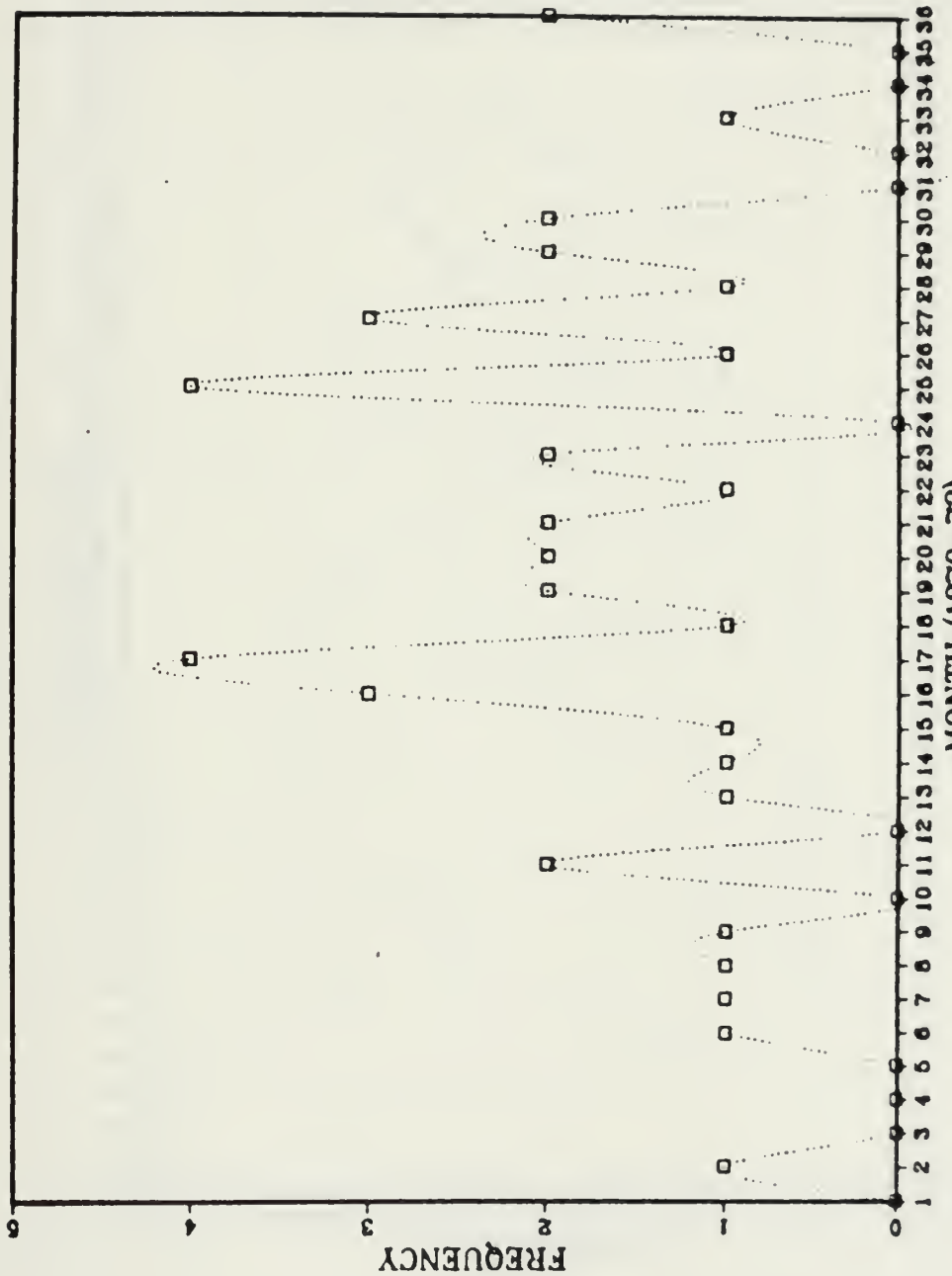

Figure 24. SSBNs

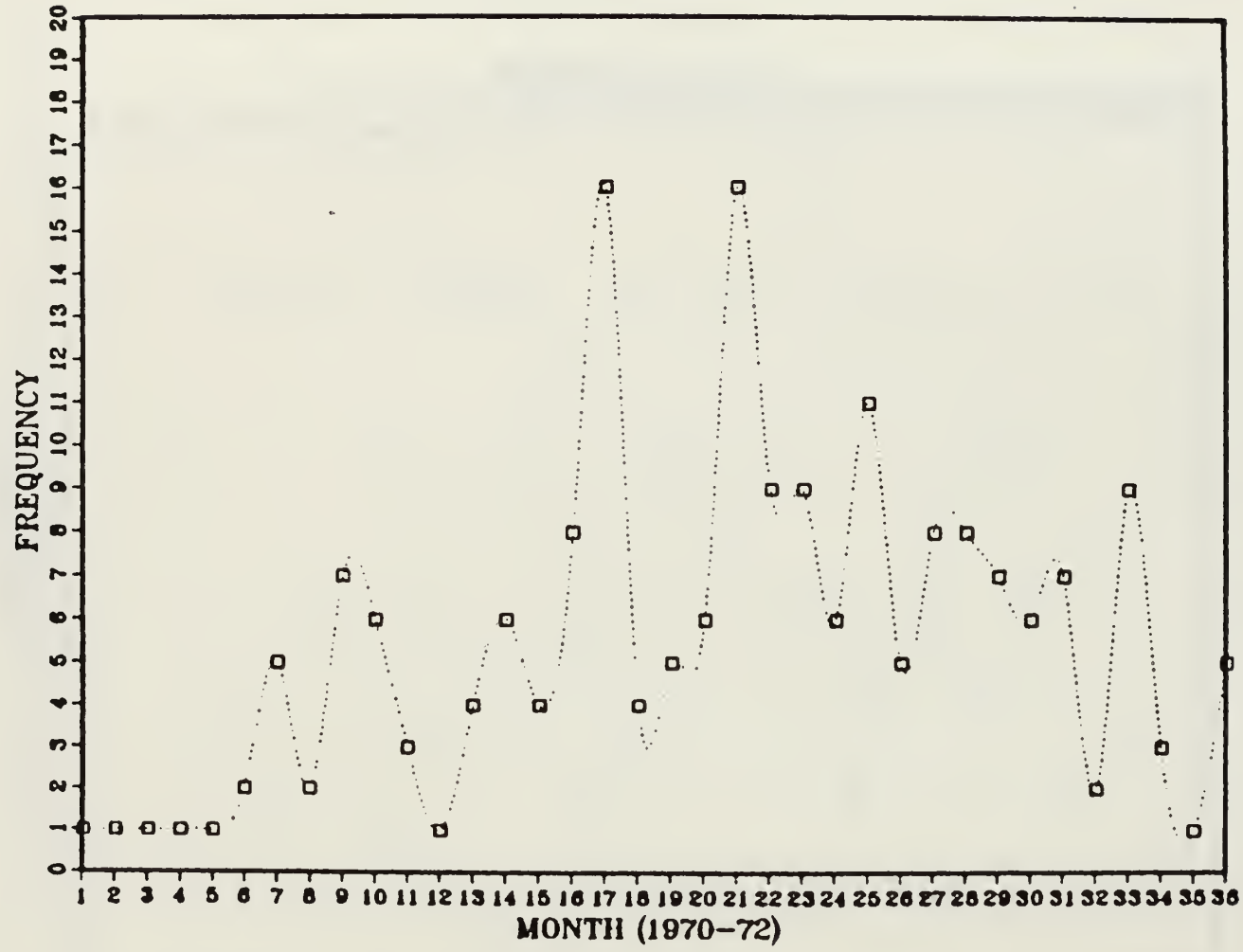

Figure 25. Submarines + SSBNs

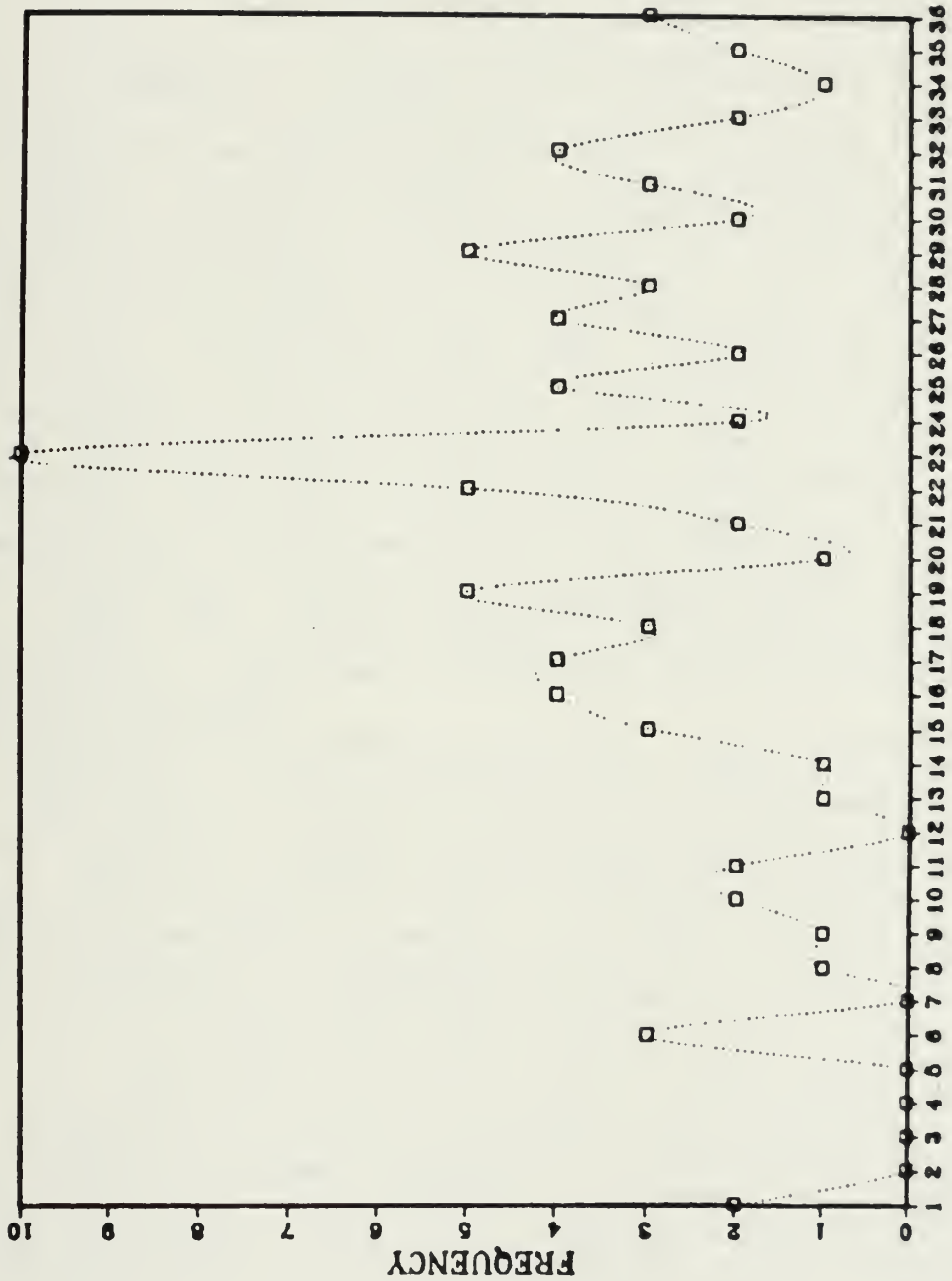

Figure 26. Antisubmarine Warfare

increased. The increased attention paid to ASW in Morskoy Sbornik presaged the 1973 arrival of modified Kashin-class guided-missile destroyers, which had been refitted with more capable submarine detection gear.

The peak in discussion of ASW occurs in November, 1971, and although several of the designated articles that month dealt with historical cases, one deserves special comment. "'Baby' Hunter-Killer Submarines in the Aggressive Plans of the American Militarists" [Ref. 30] describes the intent of Western navies to use small, high-speed attack submarines for ASW. Interestingly, this article describes a submarine unlike any on the American drawing boards, but quite close to the Soviet Alpha class launched in 1972. Thus the mirror-imaging described in Chapter 1 may occur on the part of the Soviets as well. Another incidence of this is shown in Soviet descriptions of a massive aircraft, called the ekranoplan (called the wing-in-ground effect, or WIGE vehicle in the West), which the Soviets claim Western armed forces plan to use for ASW and amphibious operations. Although no Western navy or air force had seriously considered building such a vehicle, a March, 1971 article entitled "The Development of Landing Forces" [Ref. 31] gave specifications which, it was said, would be used by Western forces. Upon analysis, the measurements and capabilities described are actually those of a Soviet prototype WIGE vehicle [Ref. 32].

The last topic dealing with submarines, that of submarine accidents, was of very low frequency (only 10 mentions in three years, as shown in Figure 27). However, it is interesting to note that all the references were to U.S. or allied submarine accidents, never to Soviet cases. Although the alleged shortcomings of U.S. submarines were discussed on roughly a quarterly basis, an interesting gap occurs following the February, 1970 mention which detailed the U.S. losses of the Thresher and Scorpion [Ref. 33]. Two months after that article appeared, a Soviet November-class nuclear attack submarine sank in the Atlantic, and it was not until October that the topic of submarine accidents (On the Safety of Nuclear-Powered Ships," [Ref. 34]) appeared, this time describing the reportedly unsafe conditions aboard U.S. nuclear submarines.

Amphibious operations (Figure 28) showed an overall, though sporadic increase. This increase represents a trend begun in the 1960s [Ref. 35:p. 176] which is shown in the Soviet rehearsal for amphibious warfare in their major exercises. Although the Soviet fear of a U.S. invasion in the 1950s (a capability demonstrated at Normandy) never materialized, and was replaced in priority first by the threat of attacks by naval air power (as demonstrated in the Korean War) and then by concern over American ballistic missile submarines (Polaris and Poseidon carriers), the

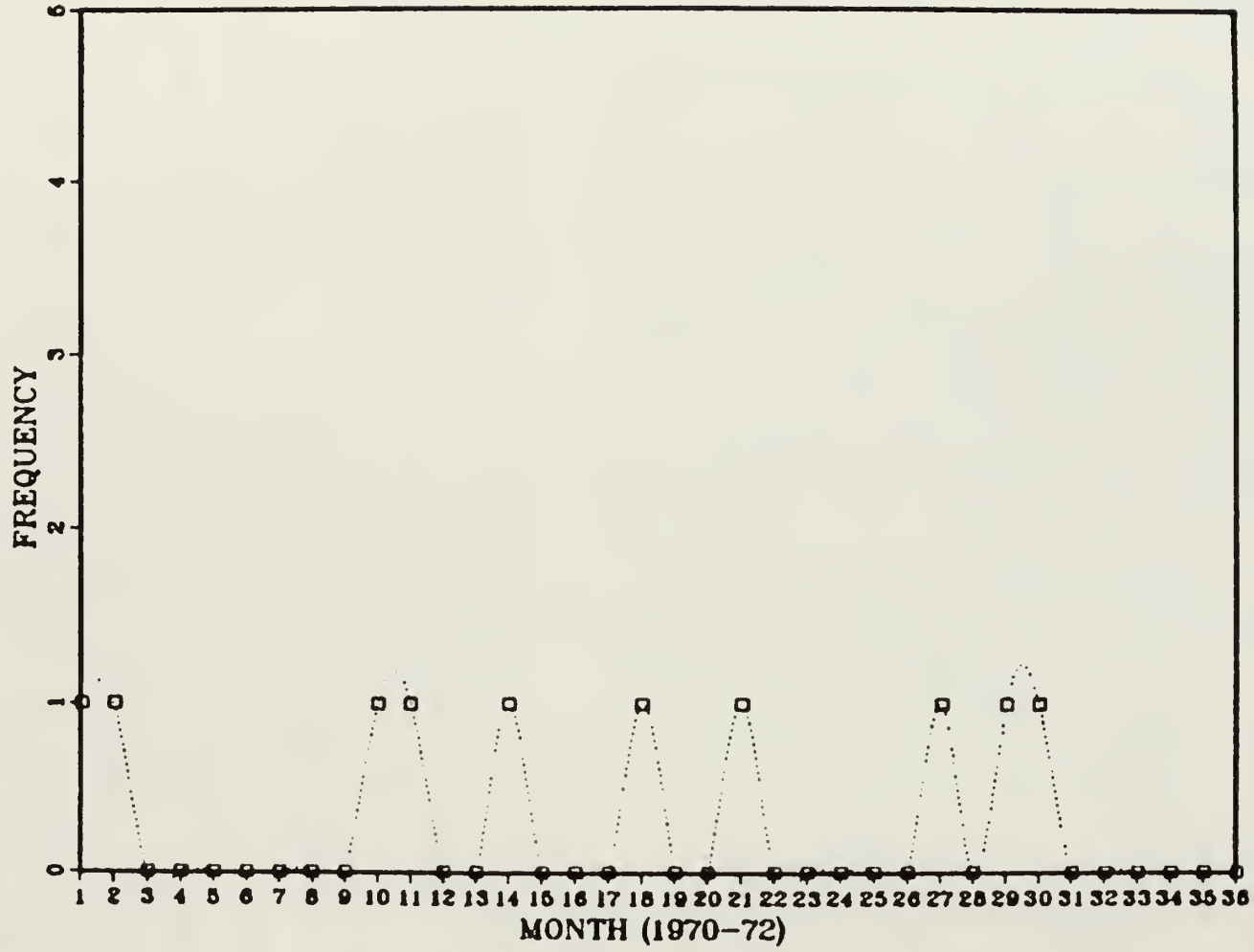

Figure 27. Submarine Accidents

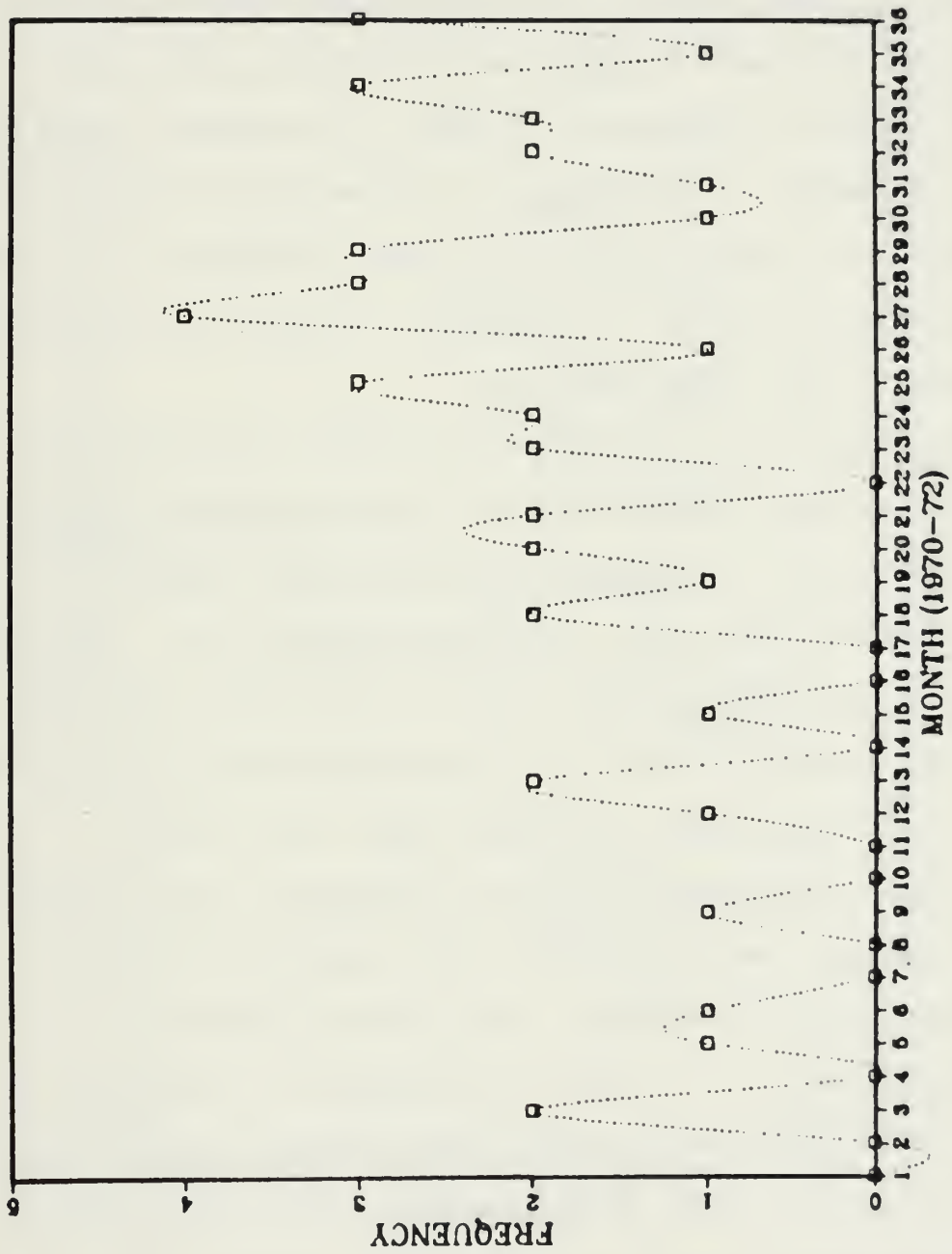

Figure 28. Amphibious Operations

capabilities for counter-amphibious warfare and offensive amphibious operations were still maintained.

Although references to aircraft (Figure 29) appear sporadic at first glance, it can be seen that the surge in references from May to August of 1971 brings about an overall change in frequency, as well as relative stability of that frequency. The surge in references in those months was not due to specific articles about aircraft, but rather an increasing acceptance of them as a topic for discussion when dealing with other subjects.

Following this acceptance of aircraft, discussion of aircraft carriers (always U.S. or allied carriers, since the Soviets had only the Moskva-class helicopter carrier operational at this time) increased (Figure 30). Ranft and Till point out that aircraft carriers had first won real acceptance in 1969, when it was realized that they could be effective in local war situations [Ref. 35:p. 104].

The final area which will be discussed in this chapter, nuclear energy, was studied in three aspects: nuclear propulsion, nuclear weapons, and nuclear warfare.

Although Figure 31 shows an increase in references to nuclear propulsion in late 1971 and the first half of 1972, review of the articles containing these references shows that the mentions stem from description of the high readiness of the Soviet nuclear submarine fleet in preparation for, and in the wake of the 24th Party Congress.

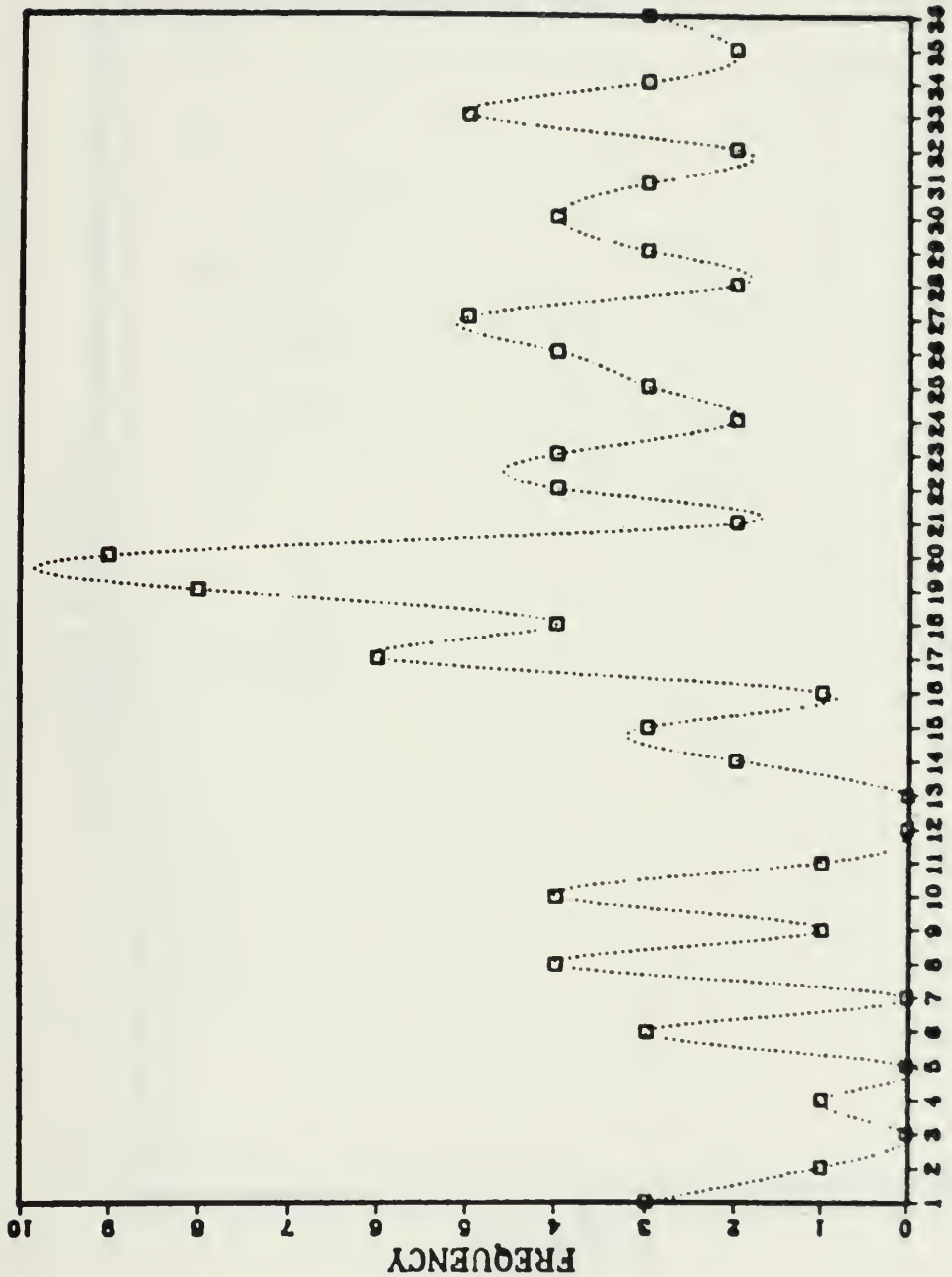

Figure 29. Aircraft

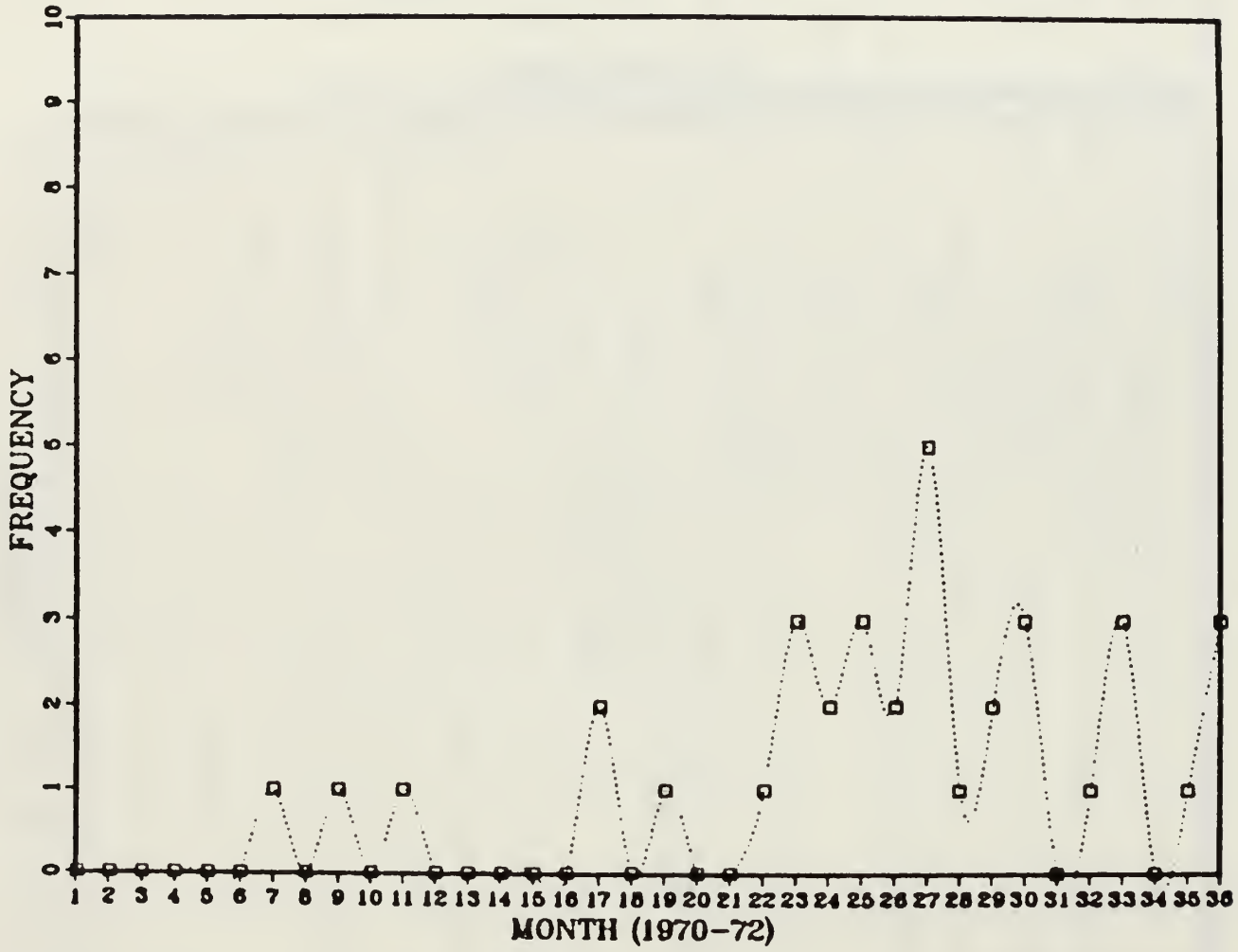

Figure 30. Aircraft Carriers

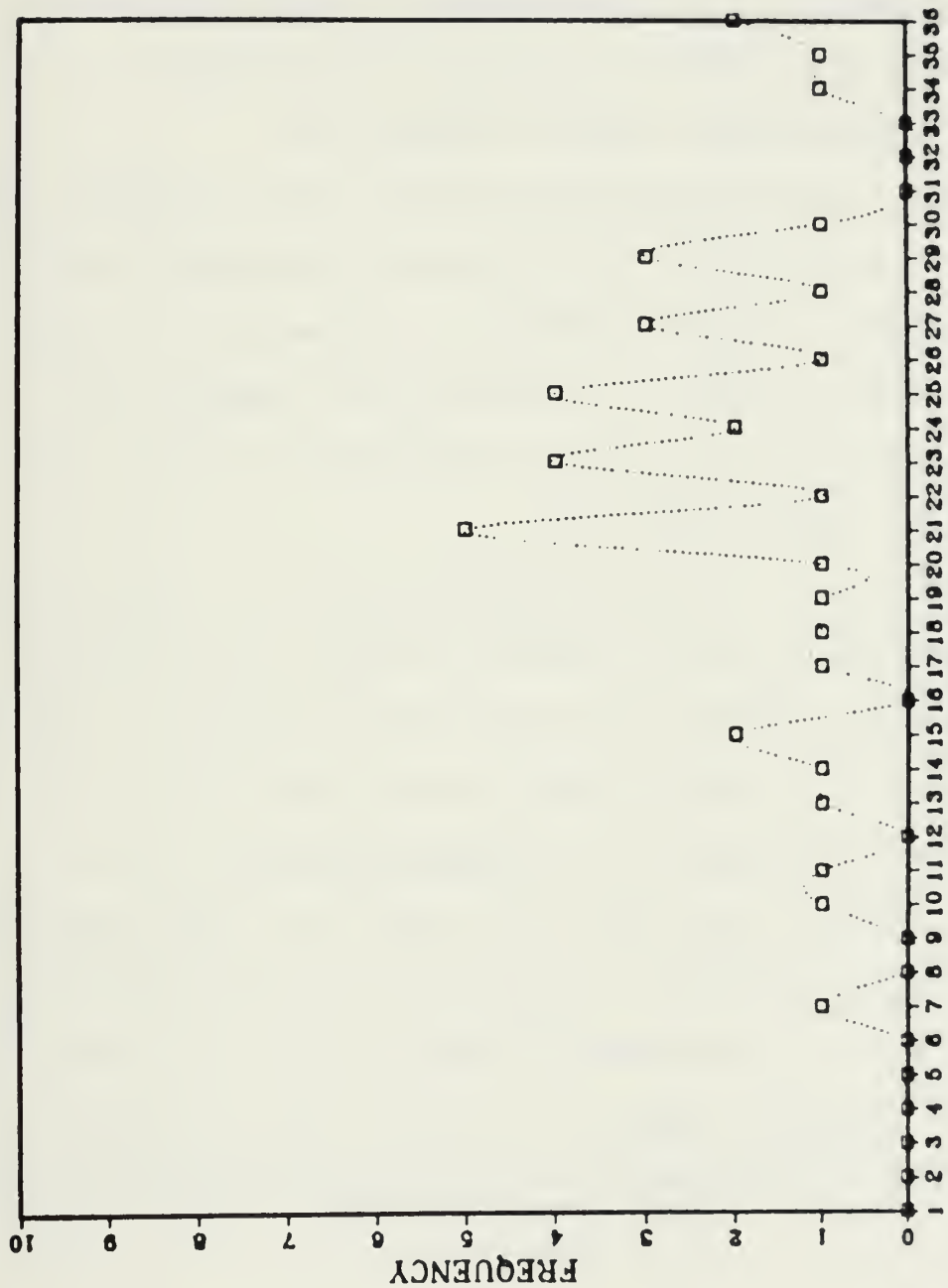

Figure 31. Nuclear Propulsion

A few mentions are made of the particular difficulties of working with nuclear power (see Figure 27, Submarine Accidents), but in general Figure 31 shows what would have been recorded by a plot of references to nuclear-powered attack submarines (SSNs, as opposed to ballistic missile-carrying SSBNs shown in Figure 24).

Nuclear weapons (Figure 32) receive more attention than propulsion, particularly in the months preceeding the 24th Party Congress. This association is reflected in another political theme, that of the Imperialists (meaning the United States and its allies) "unleashing" a war on the Soviet Union (Figure 33).

Surprisingly, although nuclear weapons are mentioned on a somewhat regular basis, nuclear warfare is not (Figure 34). The peak references do coincide with those to nuclear weapons, but the overall level is much lower. This is probably due to the fact that Morskoy Sbornik is not a source of official doctrine, but rather is a Communist Party channel for dissemination of ideology to naval officers. A more substantial measurement of policy could be gained from a study of Voyennaya M'ysl, the General Staff journal, but such a study is complicated by the controlled nature of this document.

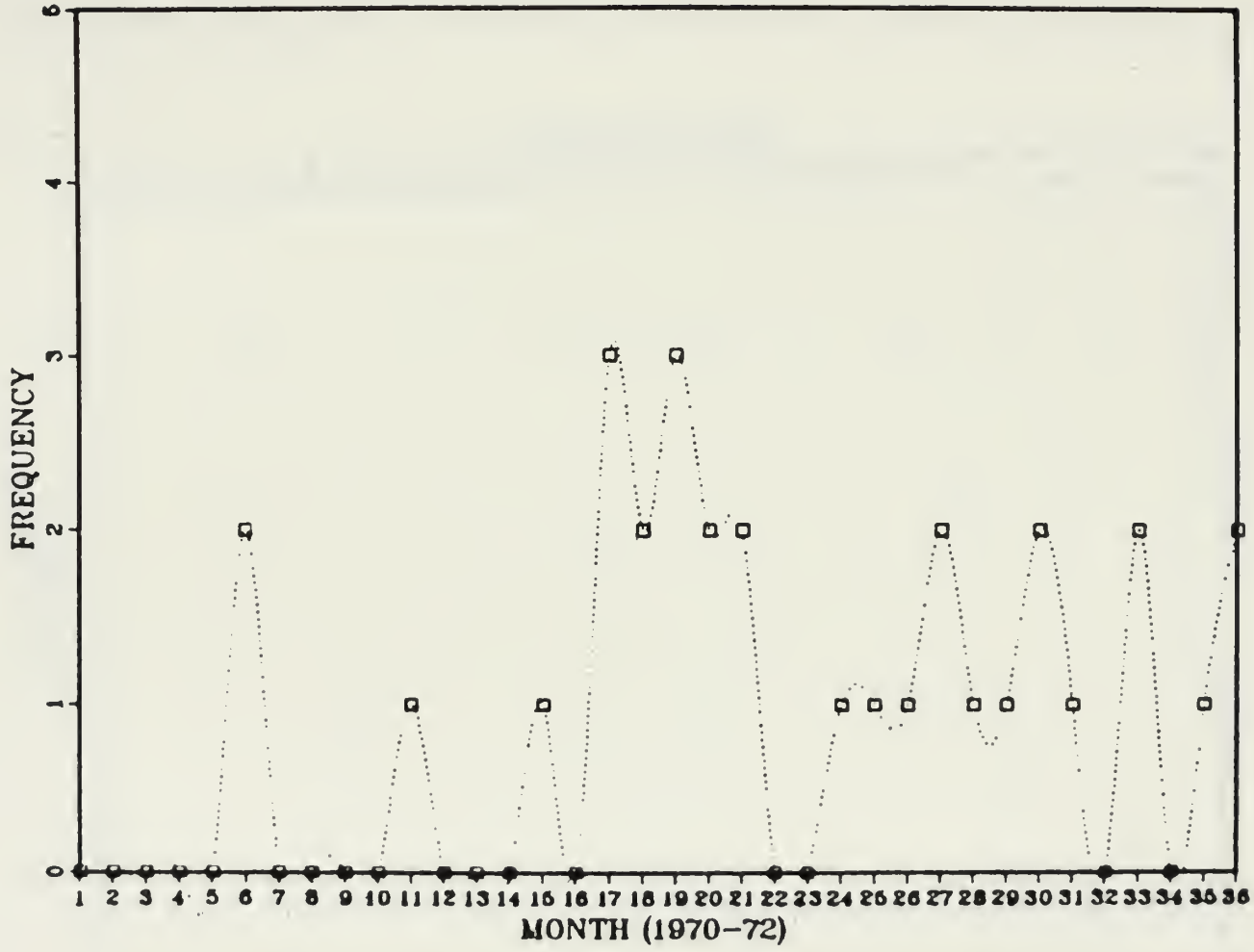

Figure 32. Nuclear Weapons

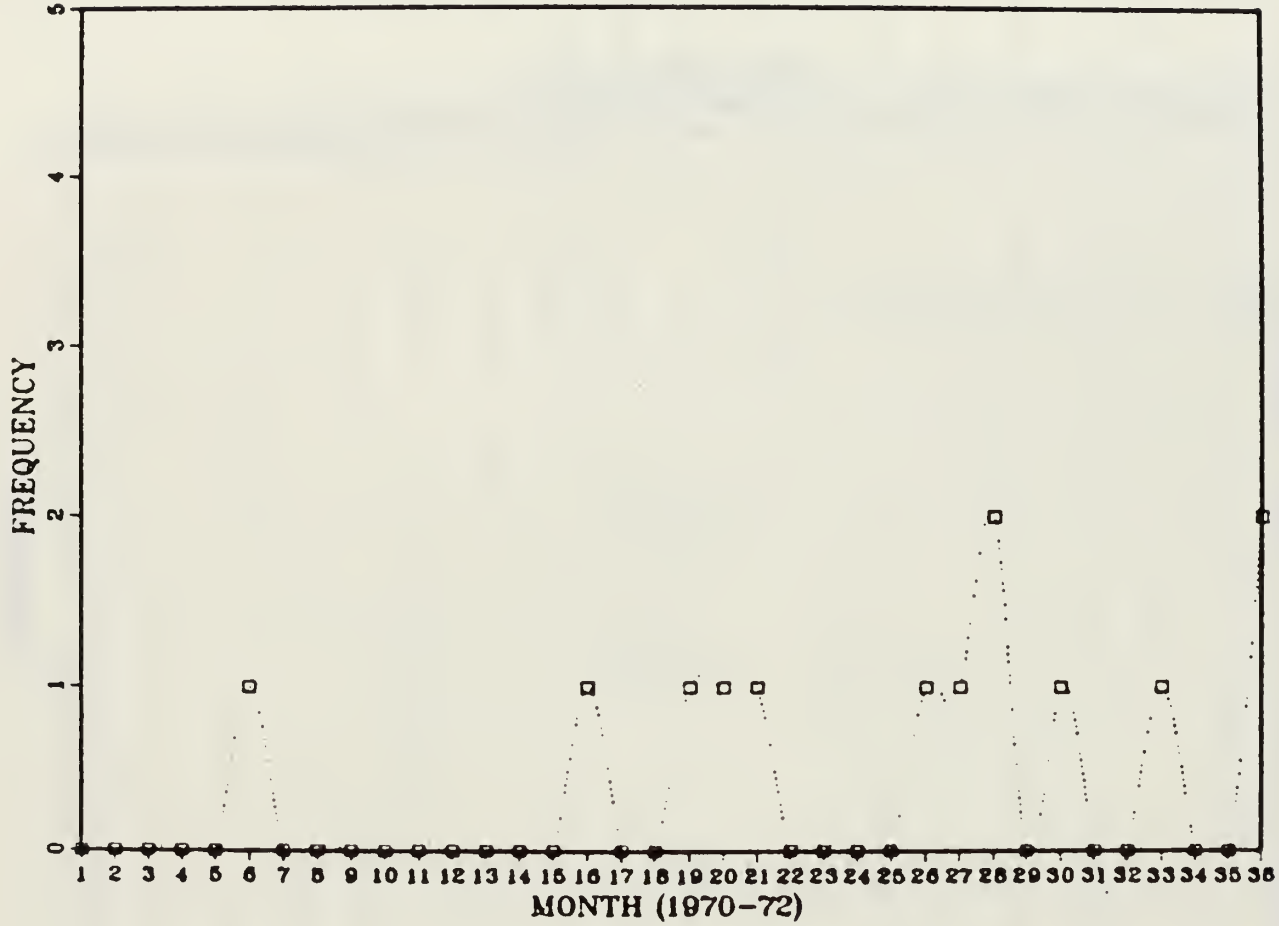

Figure 33. Imperialists "Unleash" a Nuclear War

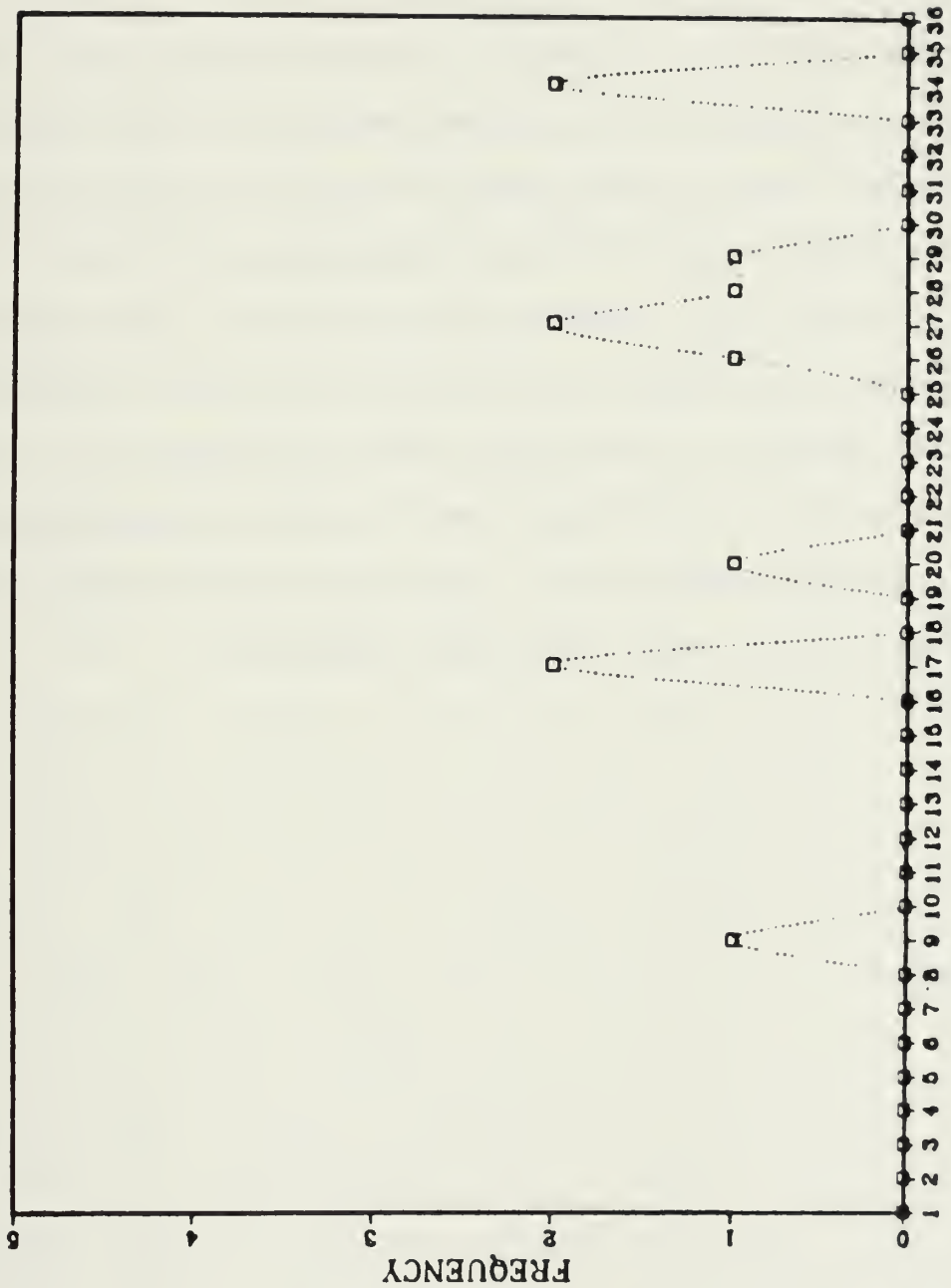

Figure 34. Nuclear Warfare

D. UTILIZATION OF RESULTS

It has been shown that even an unclassified magazine like Morskoy Sbornik can provide a "tipoff" to some occurrences and trends in the Soviet Navy, or can substantiate other data. The use of such data varies according to the needs of any given analyst, but what is most essential is to provide the information as it is needed. As in many cases of data collection, the cycle of collection, production, and dissemination of an intelligence product breaks down after the production has been completed.

The next chapter will address recommendations for institution of this methodology and the products it could provide in a format which could make them readily available for those who have a proven need for such data.

IV. RECOMMENDATIONS FOR USE OF A THEMATIC DATA BASE

The primary effort in the experiment described above was the design and compilation of a data base, which was then available for statistical analysis and evaluation. Many interpretations of the raw data could be made, and for this reason themes not specifically addressed in the previous chapters have been included as Appendix F.

The topics chosen for research varied greatly in their frequency of mention, indicating that the source document, Morskoy Sbornik, does not cover all those topics to the extent desired by an analyst. For extended research, a final topic set should include more than the 160 themes used in this case, perhaps categorizing weapon systems by type, and separating geographical areas more precisely. Summation of subsets from the total list is a relatively easy step once the data base is in a computer-readable format.

Another area of high interest, and of which Morskoy Sbornik and similar journals are excellent sources, is biographic and career information concerning Soviet military officers. Although records on the career histories of some prominent foreign military officials are kept, such compilations are often published on an irregular basis, and as a result information contained in them may be outdated. One such publication, the Dictionary of Senior Soviet Naval

Officers (U), was last published in 1976 and at the time of this writing was nine years old.

A. LIMITATIONS OF EXISTING DATA BASES

The problem with that document, and others like it, is that minor changes or updates do not justify the cost of replacing an entire book. In an era of paper and ink data sources, this was easily understood. Recent technological changes, however, have provided some researchers, particularly users of intelligence data, with alternatives in the forms of the Community On-Line Intelligence Network System (COINS) and the Defense Data Network.

COINS provides secure transmission of information from a central storage point to authorized users, and is intended for classified information. The Defense Data Network (DDN), a part of the Defense Advanced Research Projects Agency Network (ARPANET), permits transmission and storage of unclassified material only. The data base developed for this thesis, for example, could have been stored on the DDN.

Existence of such a data base, in a format accessible to authorized users (who could gain access by use of controlled passwords) would enable researchers to examine themes over time, and to locate minor references to specific topics much more easily than can be done using current methods. The primary unclassified source of references to defense-related subjects, the Air University Library Index to Military

Periodicals, records only primary subjects of each article screened for inclusion and is again produced in a hard-copy (paper) format requiring manual examination.

The data base prepared for this thesis was prepared at minimal expense using existing assets at the Naval Postgraduate School. Software development for the project was done locally, at no additional expense. The primary element consumed was manpower for data extraction and entry, which was done in addition to a regular academic schedule over a four-month period. Once the data entry program had been developed, scanning of journals and data entry averaged approximately one hour per issue. If applied to an institutionalized product, this methodology could make a great deal of information available to researchers at a very low cost.

B. SPECIFIC RECOMMENDATIONS FOR DATA BASE DESIGN

For implementation as a regular product, the following recommendations are made to the experimental data base:

1. Size of Data Set

Expand the topic set to include ship, aircraft, and weapon types. The limit of 160 categories was based on the configuration of the IBM 3278 terminals available and the design option which included numerical values of up to 255 for each value in the data entry phase. If only binary values were used, or if a full 80-column display is

available, a single-screen entry template could accommodate up to 260 variable fields. Use of multiple screens would allow any topic set to be used.

2. Biographical Data

Include references to personalities. A specific block of variable fields could be allocated for this use, and the career paths of individuals could be reconstructed much more easily than is currently possible.

3. Multiple Sources

Incorporate additional sources of data if they can be obtained on a regular basis. The Soviet Military Review, for example, although primarily oriented toward the Army, does occasionally address naval topics. Declassified editions of Voyennaya M'ysl, when available, contain valuable information. However, missing editions would seriously affect analysis of the type presented here. Missing volumes would have to be accounted for via data averaging or rejection of those months.

C. CONCLUSIONS

In sum, the creation and maintenance of a thematic data base, extracted from multiple sources and maintained in an on-line electronic format, would have applications in military intelligence. No such information presently exists in a form readily available for exploitation via computerized data processing. Existing assets could be used to

prepare such a data base, which would be more complete and accessable than any present source. Such a product could provide more timely information than current dissemination methods.

A full estimate of costs, considering the translator/analyst man-hours, software development, and recurring cost of data entry, as well as system maintenance has not been calculated, but these costs are in many cases parallel to current expenditures. The effort expended in developing such a system would be likely outweighed by the man-hours saved in searching the same data sources manually, and serious consideration should be given to incorporation of such a data base on existing data networks.

APPENDIX A

TOPICS FOR CONTENT ANALYSIS

Africa
Airborne Troops
Aircraft
Aircraft Carriers
Air Operations
Air Transport
Amphibious Operations
Antarctica
Antisubmarine Warfare
Arab Countries
Arctic Ocean
Army
Asia
Atlantic Ocean
Baltic Sea
Biological Warfare
Black Sea
Blitzkrieg
Blockade
Brezhnev
Brezhnev Doctrine
Building Communism/Socialism
Camouflage
Caribbean
Caspian Sea
Chemical Warfare
China/Far East
Civil War
Combat Reliability
Combined Forces
Communist Party of the Soviet Union
Computers/Cybernetics
Correlation of Forces
Cruise Missiles
Cuba
Defense of the Motherland
Destruction of Civilization
Destruction of Enemy Nuclear Systems
Detente
Deterrence
Directed Energy Weapons
Disorganization of Enemy's Rear Area
Dispersal/Displacement of Forces
Economics
Electronics/Radio
Electronic Warfare

Encirclement by Imperialists
Encirclement of Enemy Troops
Espionage
Fascism
Final Victory of Socialism
Foreign Economic Aid
Foreign Military Aid
Forward Detachments
Fuel
Fuel Conservation
Fuel Efficiency
General Staff
Germany (East)
Germany (West)
Great Britain
Great Patriotic War of the Soviet Union
Ground Artillery
Ground Forces
Guerilla Warfare
Guided Missiles
Helicopters
Hitler(ites)
ICBMs
Imperialist Threat to Peace
Imperialists Unleash War
Indian Ocean
Initiative of Officers
Intelligence (Military)
Japan
Justice (Military)
KGB/Border Guards
Khrushchev
KOMSOMOL
Korea (North)
Korea (South)
Korean War
Kurile Islands
Lasers
Laws of War
Lenin
Local Wars
Logistics
Long Range Aviation
Main Naval Staff
Maximum Use of Power
Medicine
Mediterranean
Middle East

Military Art
Military Doctrine
Military Science
Military Strategy
Military-Technological Superiority (Claim of/Need for)
Mines (Naval)
Missiles
Moral-Political Qualities
NATO
Naval Architecture
Naval Artillery
Naval Infantry
Naval Operations
Naval Science
Naval Support of Army
Naval Rocket Forces
Navigation
NAZIs
North Fleet
Nuclear Propulsion
Nuclear Warfare
Nuclear Weapons
Oceanography
Operational Deception
Pacific Ocean
Patriotism
Polar Regions
Political Duties
Political Nature of War
Preemptive Nuclear Strikes (Soviet)
Preemptive Nuclear Strikes (U.S.)
Propulsion Systems (Conventional, Naval)
PVO (Air Defense Forces)
Radioactive Contamination
Readiness
Rear Services
Replenishnent at Sea
Reserve Forces
Safety
Scientific Research
Second-Strike Capability
Socialist Peace-Loving Nations
Southeast Asia
Southern Hemisphere
Space (Outer)
Space Weapons
SSBNs
Stalin

Strategic Missions of Armed Forces
Strategic Missions of Navy
Strategic Naval Groupings
Strategic Reserves
Strategic Rocket Forces
Submarines
Submarine Accidents
Surprise (Element of)
Surprise Imperialist Attack
Tactics
Theatres of Military Operations (TVDs)
Theatres of Naval Operations
Torpedoes
Training
United States of America
Warsaw Pact Nations

APPENDIX B

LIST OF RELATED TERMS FOR INTERCODER RELIABILITY

Aircraft	Any aircraft designation
Aircraft Carriers	Helicopter carriers
Air Operations	Air combat
Blockade	Naval blockade
Brezhnev Doctrine	Protecting the gains of Socialism
Electronics/Radio	Radar, radio navigation
Middle East	Any country in that area
Moral-Political Qualities	Morale
NATO	By name only, not individual countries
Naval Architecture	Design of ships
Naval Artillery	Large-calibre naval guns
Naval Operations	Combat operations at sea
Oceanography	Oceanology
Patriotism	Patriotic duties
Southeast Asia	Any country in that area
Southern Hemisphere	Any country in that area
Space (Outer)	Satellites and space systems
Submarines	Submersibles; any submarines other than SSBNs
Warsaw Pact Nations	Any of those nations

APPENDIX C

SOURCE CODE FOR DATA INPUT PROGRAM

Filename: BINCONT Filetype: EXEC

```
&TRACE
*
*          SUMMER 1985:  THIS EXEC USES A DMS (DISPLAY MANAGEMENT SYSTEM)
*          FULL-SCREEN PANEL TO ALLOW EASY INPUT OF RAW DATA.  DATA IS
*          FORMATTED AND WRITTEN INTO A CMS FILE CALLED "LIT FILE."
*
*          DMS REFERENCE:  TECHNICAL NOTE VM-09, USE OF THE DISPLAY
*          MANAGEMENT SYSTEM AT NPS, PREPARED BY THE W. R. CHURCH COMPUTER
*          CENTER AT THE NAVAL POSTGRADUATE SCHOOL.
*
*          LINK TO DMS VIRTUAL MACHINE.
*
EXEC $LINK$ 0029P 191
&READ VAR & &CUU &MODE
*
*          SETTING DEFAULTS.  &D170, &B5, &B3, AND &B1 ARE EXAMPLES OF
*          EXEC2 VARIABLE NAMES.  &LEFT IS AN EXAMPLE OF AN EXEC2 FUNCTION.
*          FOR MORE INFORMATION, SEE IBM PUBLICATION "IBM VM/SP EXEC 2
*          REFERENCE."
*
&D170 = &BLANK
&B5 = &LEFT OF &BLANK 5
&B3 = &LEFT OF &BLANK 3
&B1 = &BLANK
*
*          ANNOUNCE USE OF DMS.
*
EUDEXEC2
&PRESUME &SUBCOMMAND DISPLAY
```

(continued on next page)

```
NUMBER JUSTIFY RIGHT FILL BLANK
ALPHA  JUSTIFY RIGHT FILL BLANK
USE BINCONT
*
*          TRANSFER CONTROL TO -START LABEL FOR EACH NEW CASE.
*
-START
*
*          SET ALL DATA VARIABLES TO BLANK
*
&INDEX = 0
&LOOP -END1 169
   &INDEX = &INDEX + 1
   &D&INDEX = &BLANK
   -END1
*
*          COMMAND PANEL PRESENTATION.
*
DISPLAY
*
*          CHECK RETURN CODE OR PF KEY RESPONSE.
*
&IF &RETCODE NE 0 &GOTO -ERROR1
&IF &RSTATUS EQ PF3 &GOTO -EXIT4
&IF &RSTATUS EQ PF15 &GOTO -EXIT4
*
*          IF NO VALUE WAS DETECTED FOR VARIABLES &D1 THROUGH &D168, THE
*          PROGRAM ENSURES THAT THEIR VALUES ARE SET TO BLANKS.  THIS GUARDS
*          AGAINST "NULLS" BEING INPUT INSTEAD.
*
&IF /&D1 = / &THEN &D1 =  &B3
&IF /&D2 = / &THEN &D2 =  &B3
```

(continued on next page)

```
&IF /&D3 = / &THEN &D3 =  &LEFT OF &BLANK 4
&IF /&D4 = / &THEN &D4 =  &LEFT OF &BLANK 25
&IF /&D5 = / &THEN &D5 =  &B3
&IF /&D6 = / &THEN &D6 =  &LEFT OF &BLANK 4
&IF /&D7 = / &THEN &D7 =  &B1
&IF /&D8 = / &THEN &D8 =  &LEFT OF &BLANK 2
&IF /&D9 = / &THEN &D9 =  &LEFT OF &BLANK 2
&INDEX = 9
&LOOP -END2 160
   &INDEX = &INDEX + 1
   &IF /&D&INDEX = / &THEN &D&INDEX = &B3
   -END2
*
*         BUILD OUTPUT LINES.
*
&LINE1 = &CONCAT OF &D1 &B1 01 &B1 &D2
&LINE2 = &CONCAT OF &D1 &B1 02 &B1 &D4 - &D5 - &D6 - &D7 - &D3 - &D8
&LINE2 = &CONCAT OF &LINE2 - &D9
&LINE3 = &CONCAT OF &D1 &B1 03 &B1 &D10 &D11 &D12 &D13 &D14 &D15
&LINE3 = &CONCAT OF &LINE3 &D16 &D17 &D18 &D19 -- &D20 &D21 &D22
&LINE3 = &CONCAT OF &LINE3 &D23 &D24 &D25 &D26    &D27 &D28 &D29
&LINE4 = &CONCAT OF &D1 &B1 04 &B1 &D30 &D31 &D32 &D33 &D34 &D35
&LINE4 = &CONCAT OF &LINE4 &D36 &D37 &D38 &D39 -- &D40 &D41 &D42
&LINE4 = &CONCAT OF &LINE4 &D43 &D44 &D45 &D46    &D47 &D48 &D49
&LINE5 = &CONCAT OF &D1 &B1 05 &B1 &D50 &D51 &D52 &D53 &D54 &D55
&LINE5 = &CONCAT OF &LINE5 &D56 &D57 &D58 &D59 -- &D60 &D61 &D62
&LINE5 = &CONCAT OF &LINE5 &D63 &D64 &D65 &D66    &D67 &D68 &D69
&LINE6 = &CONCAT OF &D1 &B1 06 &B1 &D70 &D71 &D72 &D73 &D74 &D75
&LINE6 = &CONCAT OF &LINE6 &D76 &D77 &D78 &D79 -- &D80 &D81 &D82
&LINE6 = &CONCAT OF &LINE6 &D83 &D84 &D85 &D86    &D87 &D88 &D89
&LINE7 = &CONCAT OF &D1 &B1 07 &B1 &D90 &D91 &D92 &D93 &D94 &D95
&LINE7 = &CONCAT OF &LINE7 &D96 &D97 &D98 &D99 -- &D100 &D101 &D102
```

(continued on next page)

```
&LINE7 = &CONCAT OF &LINE7 &D103 &D104 &D105 &D106 &D107 &D108 &D109
&LINE8 = &CONCAT OF &D1 &B1 08 &B1 &D110 &D111 &D112    &D113 &D114 &D115
&LINE8 = &CONCAT OF &LINE8  &D116  &D117 &D118 &D119 -- &D120 &D121 &D122
&LINE8 = &CONCAT OF &LINE8  &D123  &D124 &D125 &D126    &D127 &D128 &D129
&LINE9 = &CONCAT OF &D1 &B1 09 &B1 &D130 &D131 &D132    &D133 &D134 &D135
&LINE9 = &CONCAT OF &LINE9  &D136  &D137 &D138 &D139 -- &D140 &D141 &D142
&LINE9 = &CONCAT OF &LINE9  &D143  &D144 &D145 &D146    &D147 &D148 &D149
&LINE10 = &CONCAT OF &D1 &B1 10 &B1 &D150 &D151 &D152   &D153 &D154 &D155
&LINE10 = &CONCAT OF &LINE10 &D156 &D157 &D158 &D159 -- &D160 &D161 &D162
&LINE10 = &CONCAT OF &LINE10 &D163 &D164 &D165 &D166    &D167 &D168 &D169
*
*         USE THE EXEC 2 FUNCTION EXECIO TO APPEND THE 10 INPUT LINES
*         TO THE CMS FILE "LIT FILE."
*
&INDEX = 0
&LOOP -END3 10
   &INDEX = &INDEX + 1
   &COMMAND EXECIO 1 DISKW LIT FILE A 0 F (STRING &LINE&INDEX
   -END3
&D170 = CONCAT OF LAST CASE: &BLANK &D1
*
*         RETURN FOR NEXT CASE INPUT.
*
&GOTO -START
-ERROR1
&TYPE SOME SORT OF PROBLEM
-EXIT4
&COMMAND RELEASE &MODE (DET
&EXIT
```

APPENDIX D

TOPICS RECEIVING LESS THAN 1% MENTION

Airborne Troops
Air Transport
Antarctica
Asia
Biological Warfare
Blitzkrieg
Brezhnev Doctrine
Camouflage
Caribbean
Chemical Warfare
Combat Reliability
Computers/Cybernetics
Correlation of Forces
Cruise Missiles
Cuba
Destruction of Civilization
Destruction of Enemy Nuclear Systems
Detente
Deterrence
Directed Energy Weapons
Dispersal/Displacement of Forces
Electronic Warfare
Encirclement by Imperialists
Encirclement of Enemy Troops
Espionage
Final Victory of Socialism
Foreign Economic Aid
Foreign Military Aid
Forward Detachments
Fuel Conservation
Fuel Efficiency
General Staff
Germany (East)
Ground Artillery
Ground Forces
Guerilla Warfare
ICBMs
Justice (Military)
KGB/Border Guards
Khrushchev
Korea (North)
Korea (South)
Korean War
Lasers

Laws of War
Local Wars
Long Range Aviation
Main Naval Staff
Maximum Use of Power
Medicine
Middle East
Military Art
Military Doctrine
Military Science
Military Strategy
Military-Technological Superiority (Claim of)
Military-Technological Superiority (Need for)
Naval Science
Naval Rocket Forces
NAZIs
Operational Deception
Political Nature of War
Preemptive Nuclear Strikes (Soviet)
Preemptive Nuclear Strikes (U.S.)
PVO (Air Defense Forces)
Radioactive Contamination
Rear Services
Replenishment at Sea
Reserve Forces
Second-Strike Capability
Socialist Peace-Loving Nations
Stalin
Strategic Missions of Armed Forces
Strategic Missions of Navy
Strategic Naval Groupings
Strategic Reserves
Strategic Rocket Forces
Surprise
Surprise Imperialist Attack
Theatres of Military Operations
United States of America
Warsaw Treaty Organization

APPENDIX E

RANKING OF TOPIC VS. FREQUENCY OF MENTION

TOPIC	TIMES MENTIONED
Great Patriotic War of the Soviet Union	184
Training	178
Submarines	154
Communist Party of the Soviet Union	114
Aircraft	105
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Remaining topics received 10 mentions or less and are included in Appendix D.

APPENDIX F

ADDITIONAL RESULTS

The following figures provide rates of mention for topics not specifically addressed in the data analysis portion of this thesis. They represent those topics which were mentioned frequently enough to be of interest to other analysts.

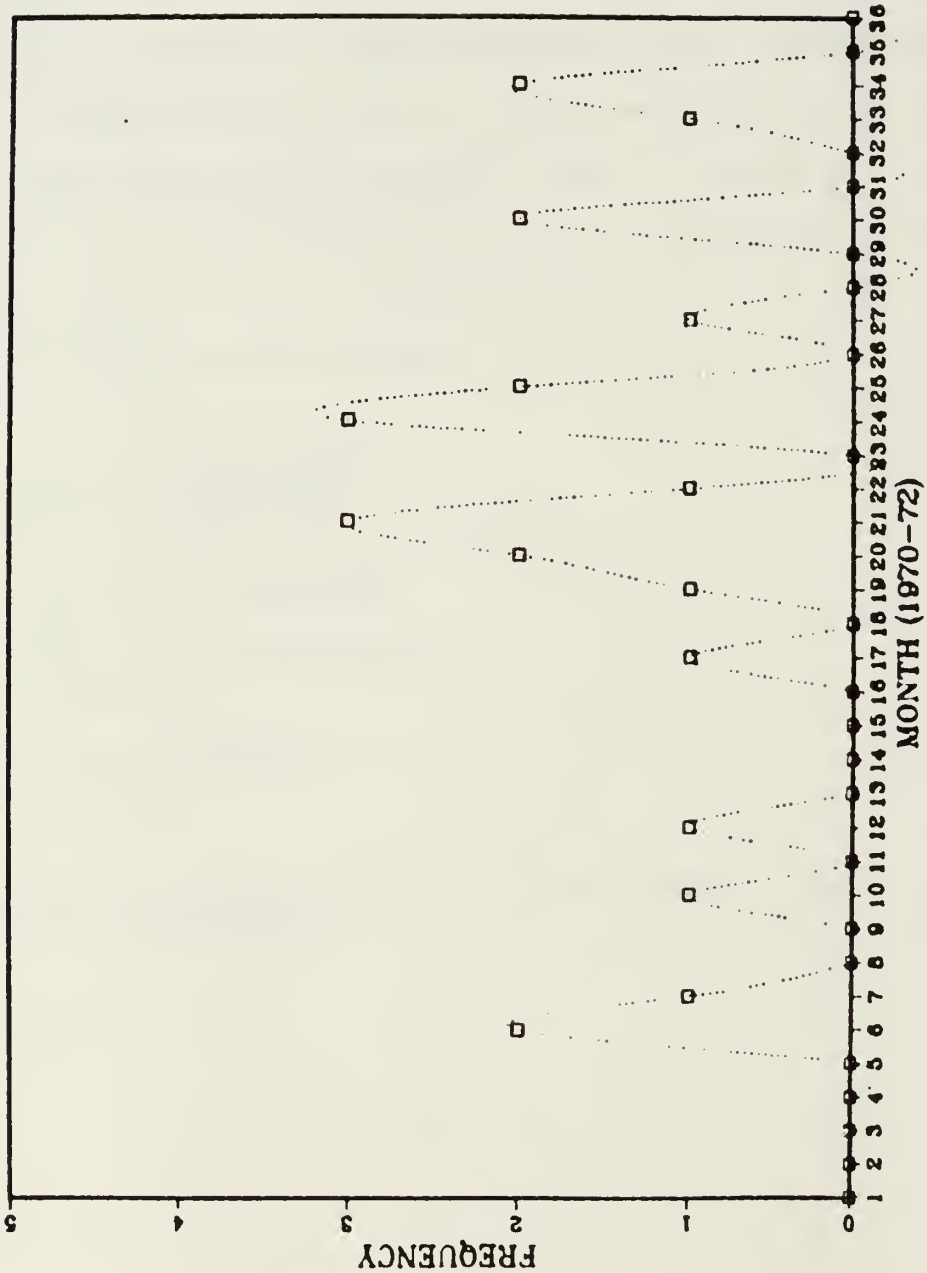

Figure 35. Arctic Ocean

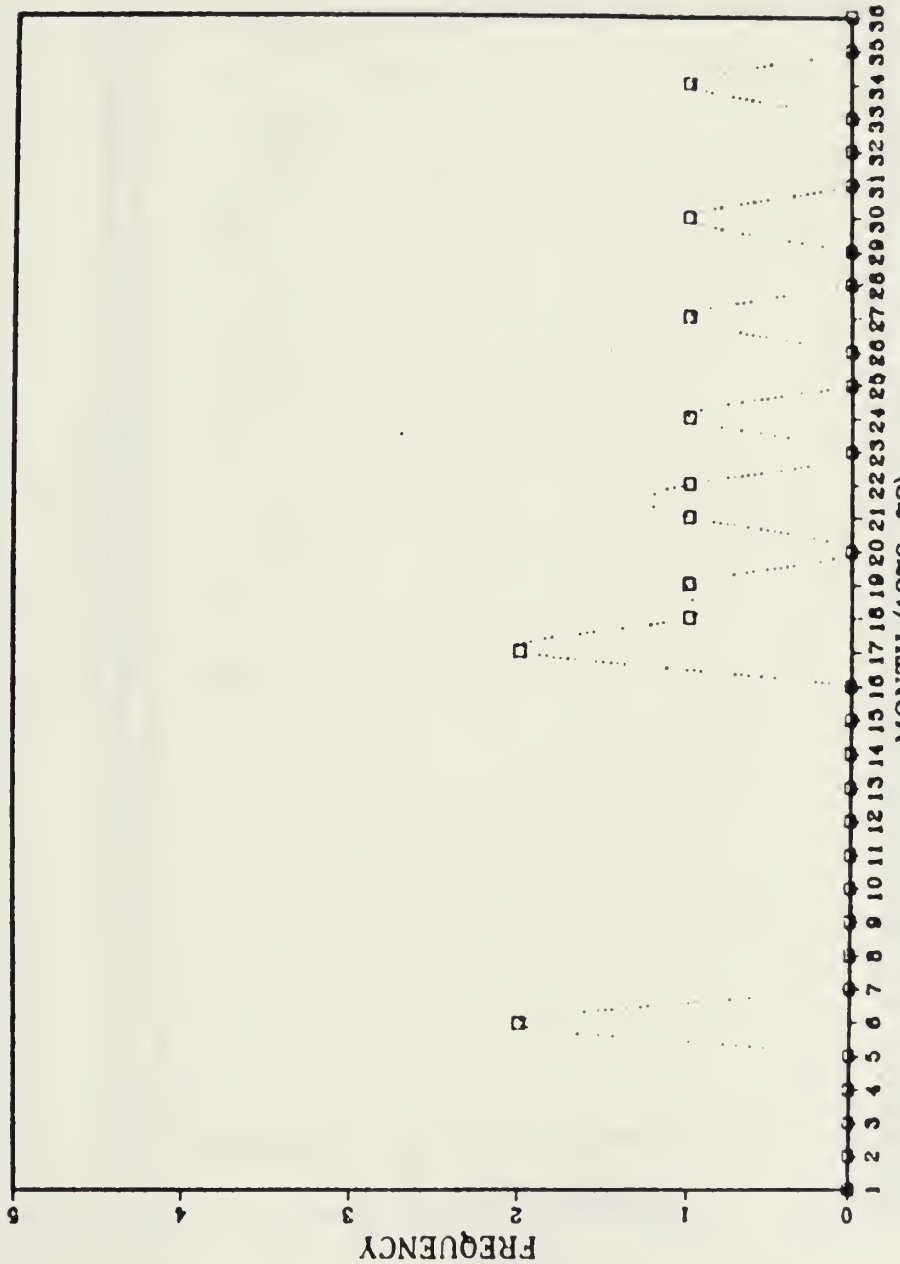

Figure 36. Caspian Sea/Caspian Flotilla

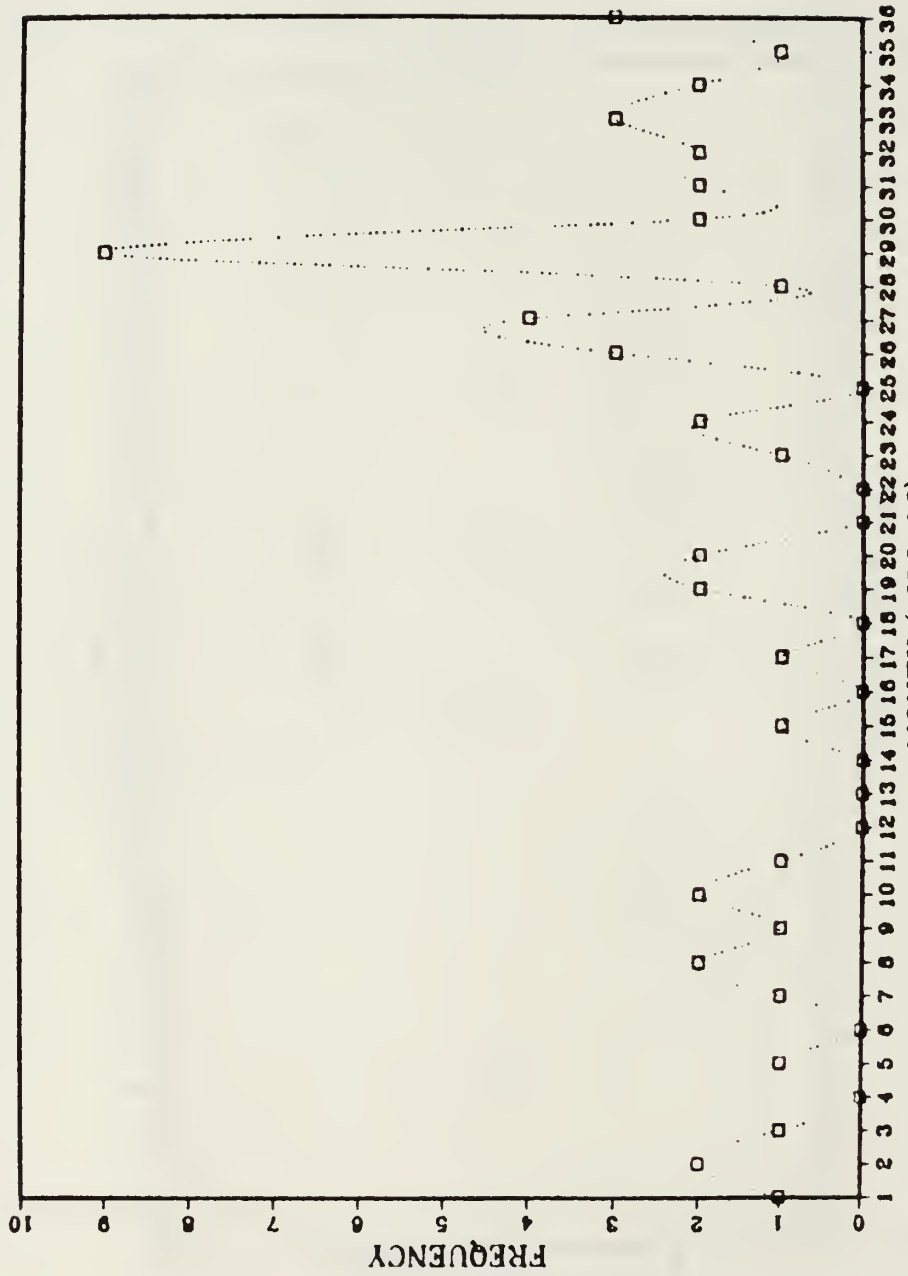

Figure 37. Electronics/Radio

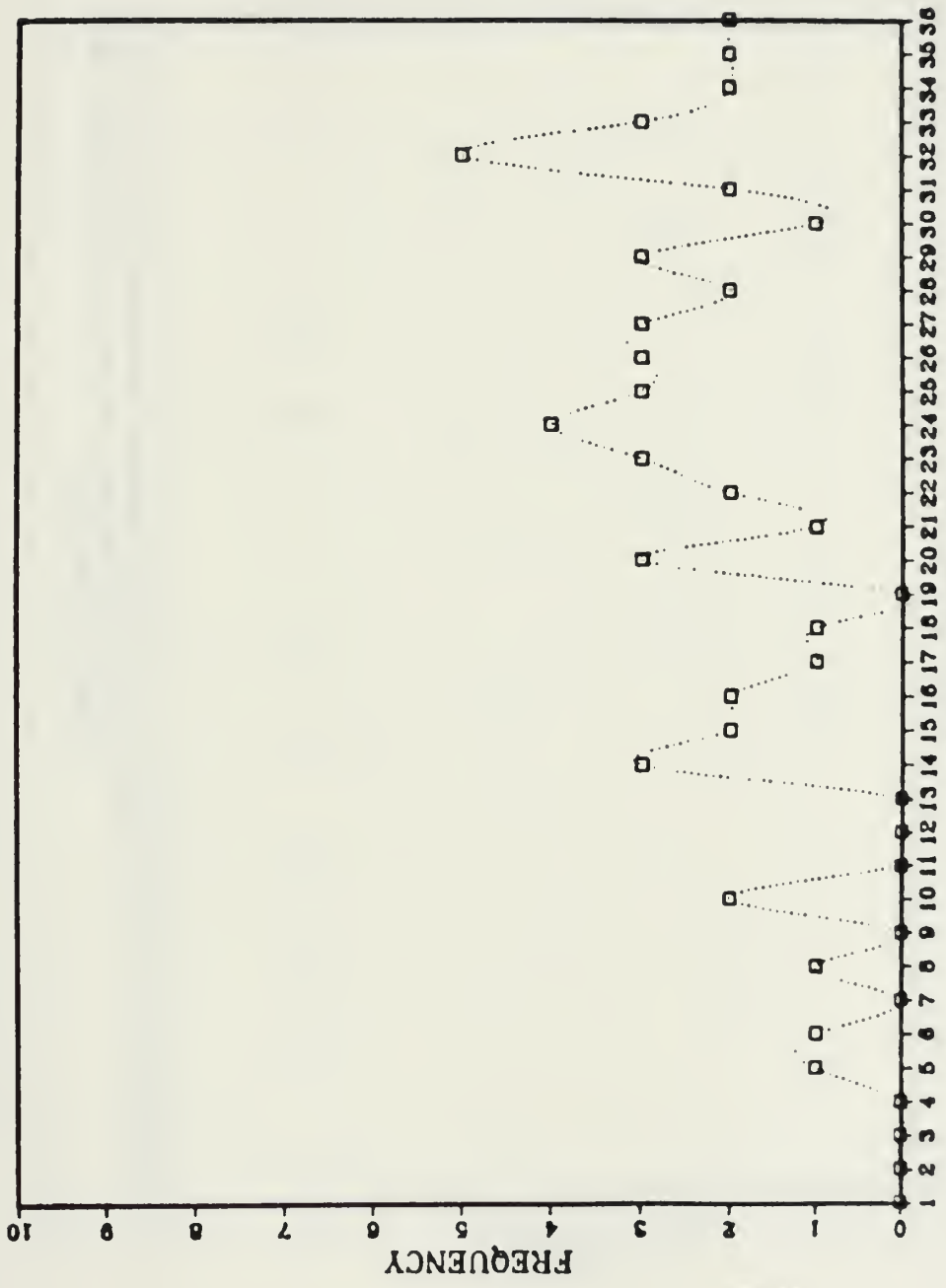

Figure 38. Great Britain

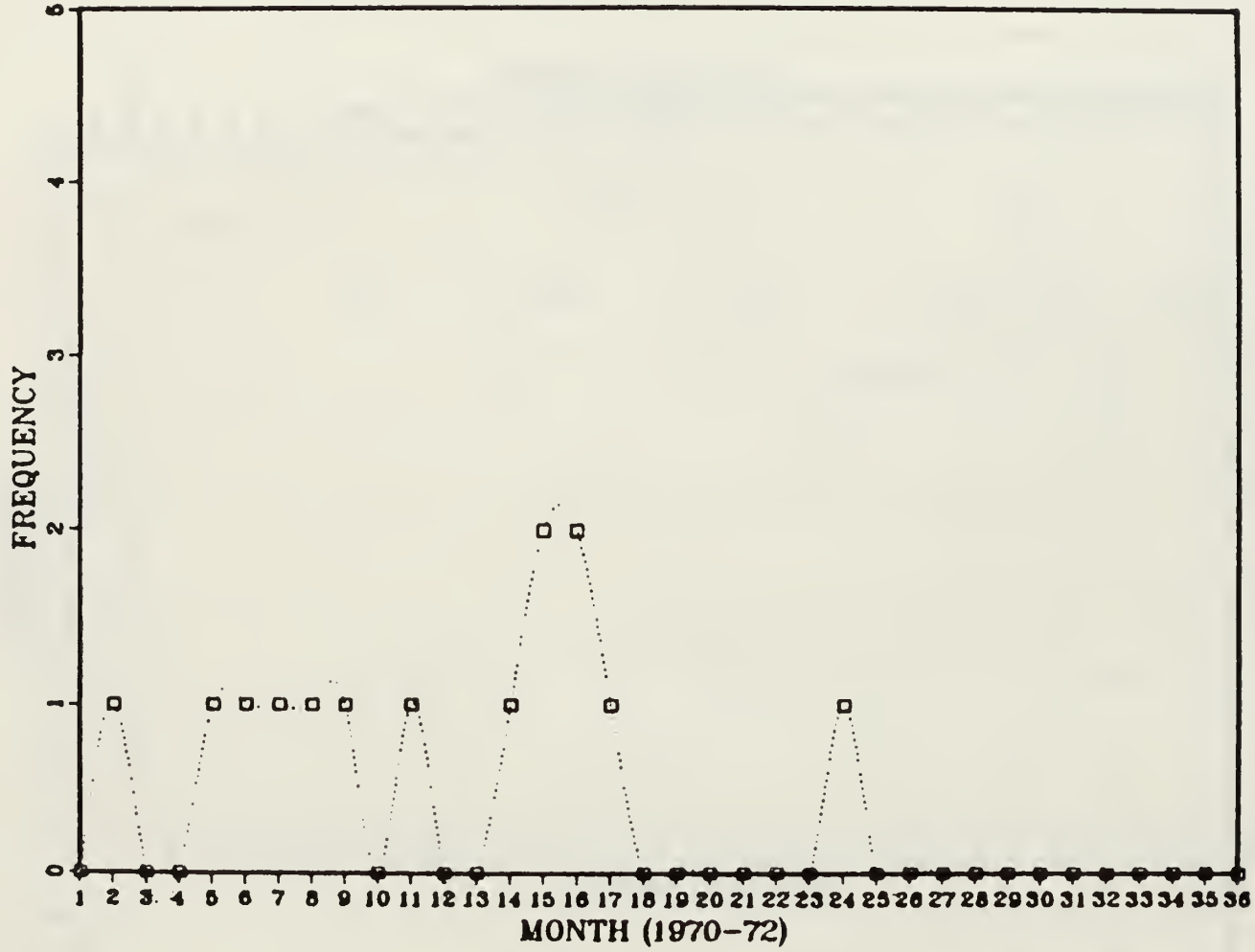

Figure 39. The Imperialist Threat to Peace

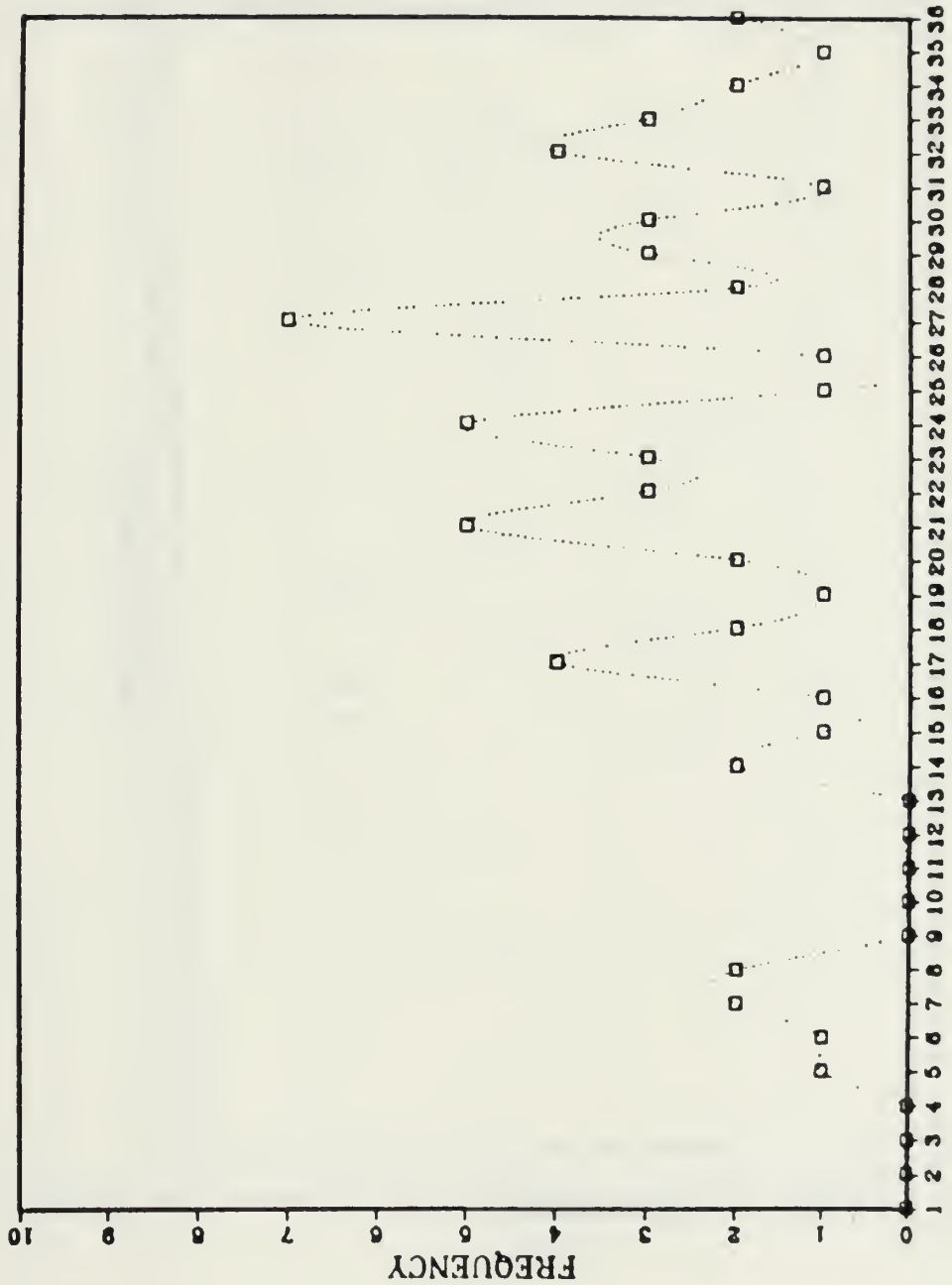

Figure 40. Japan

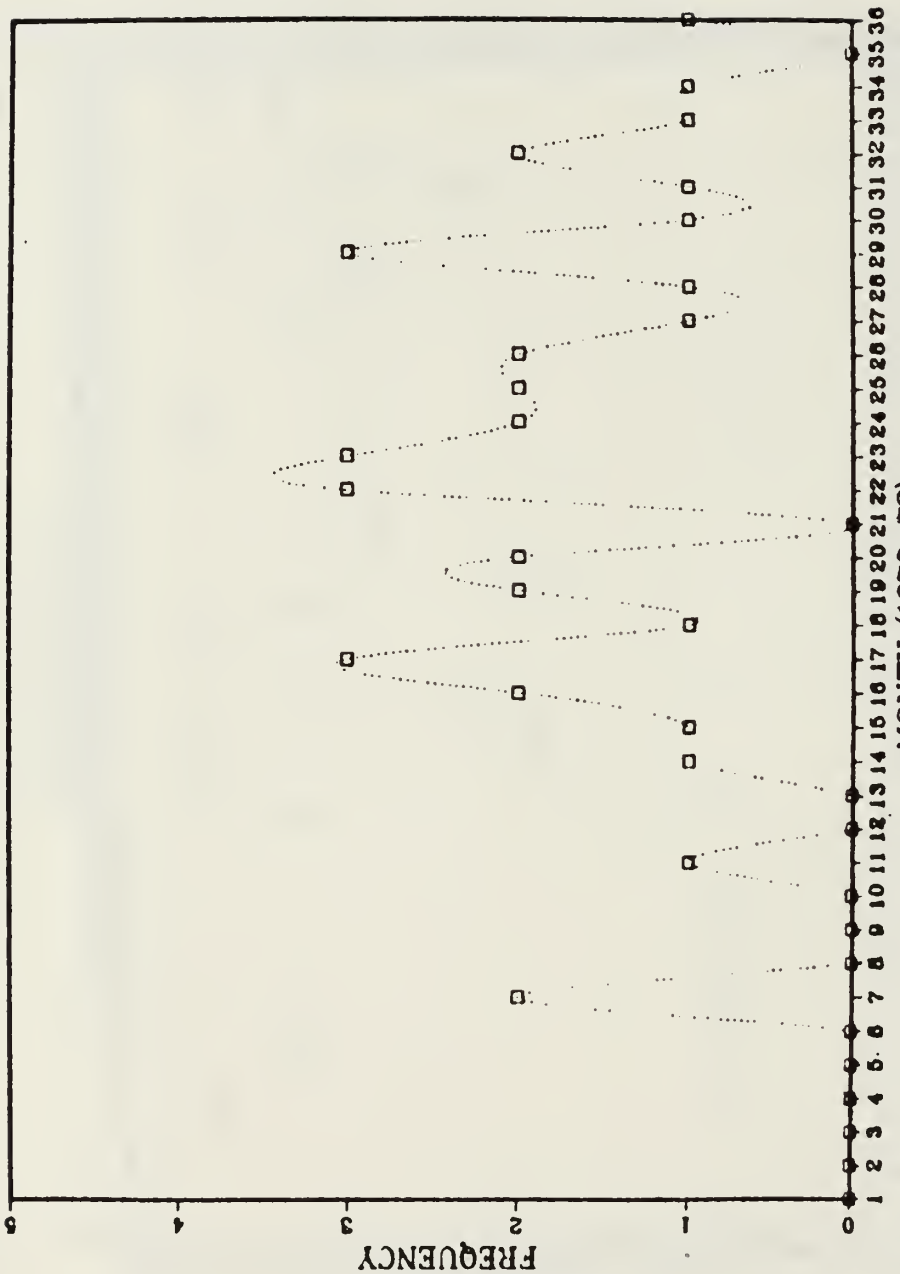

Figure 41. NATO

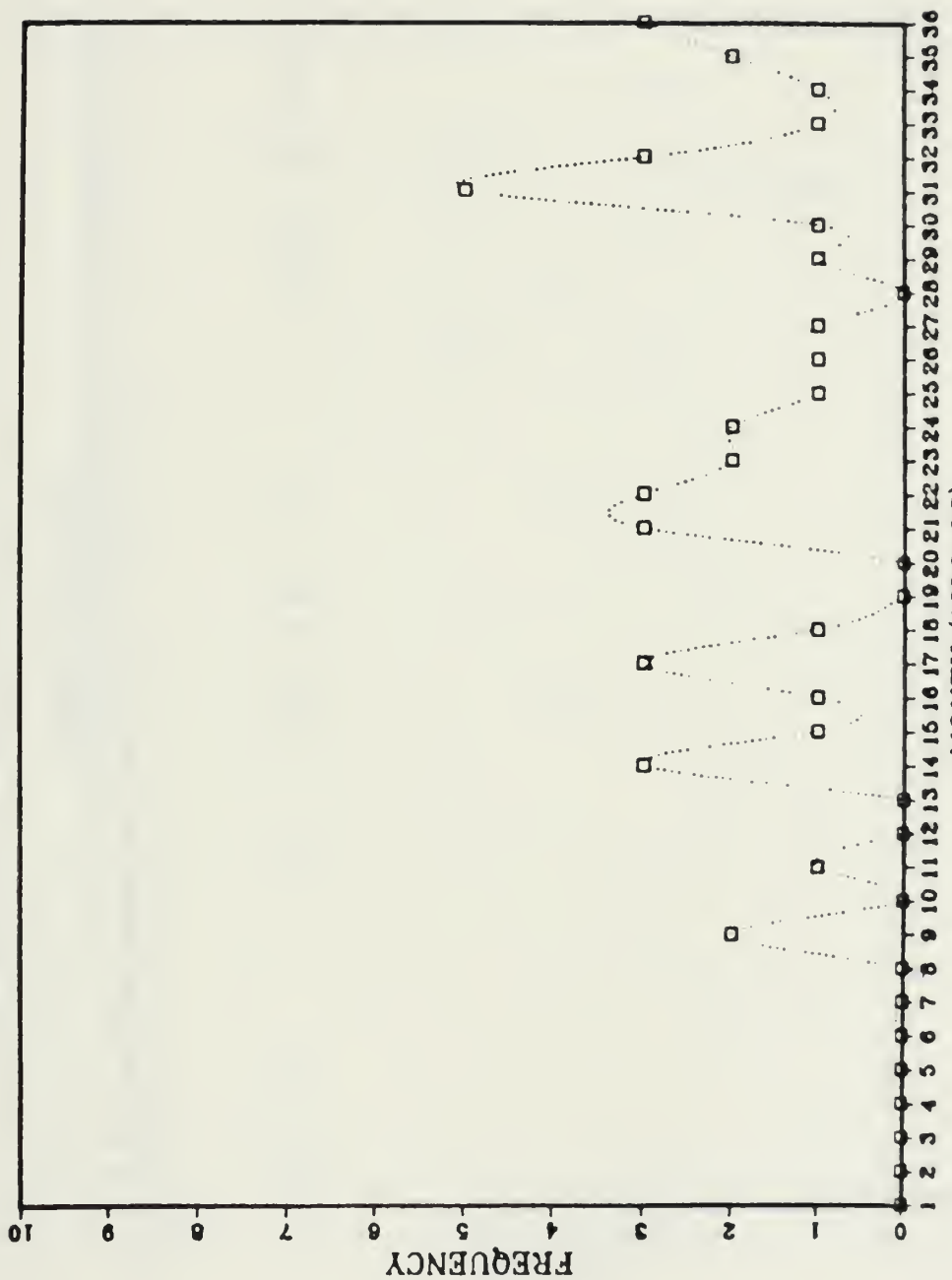

Figure 42. Naval Mines

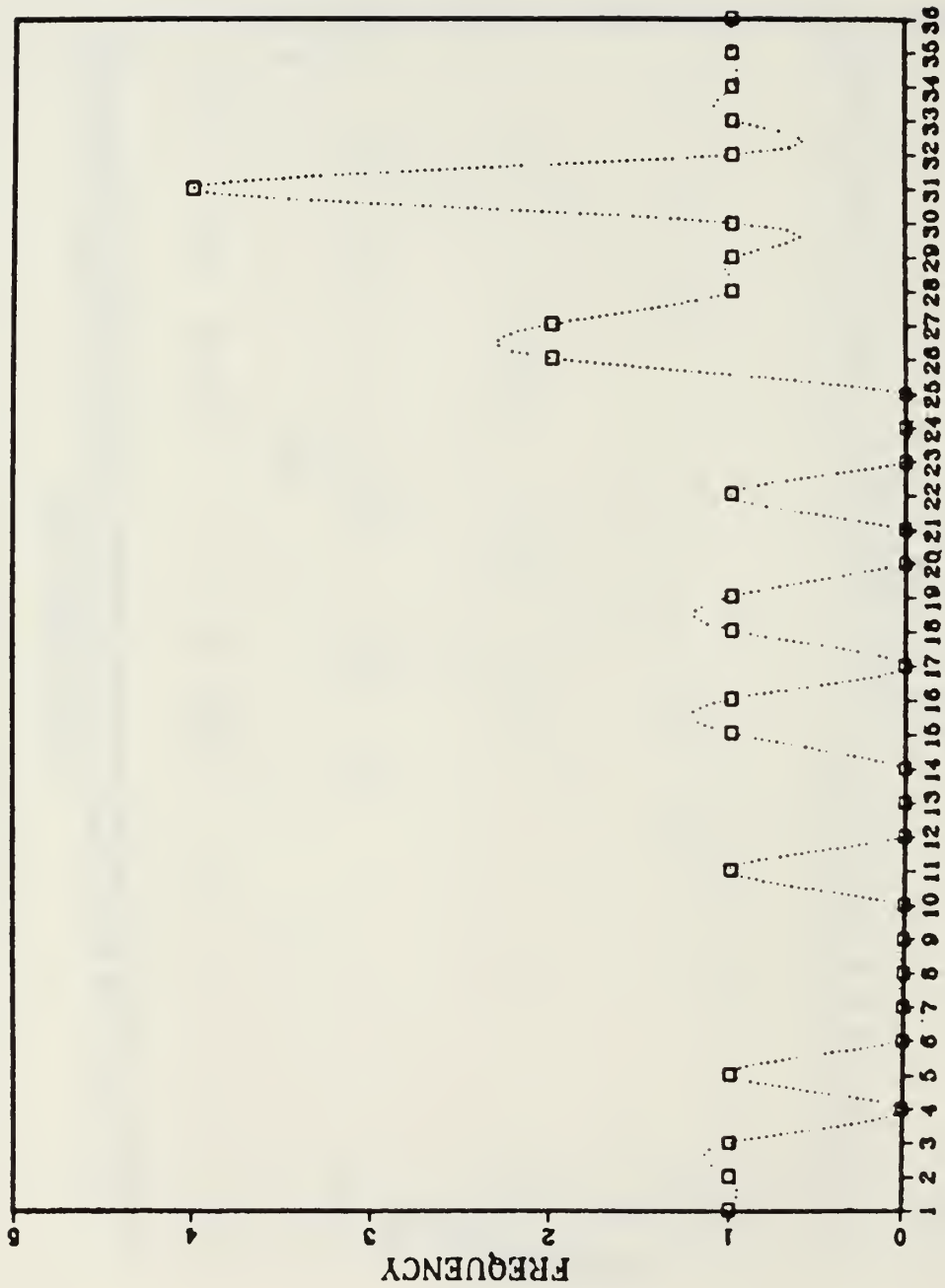

Figure 43. Naval Operations

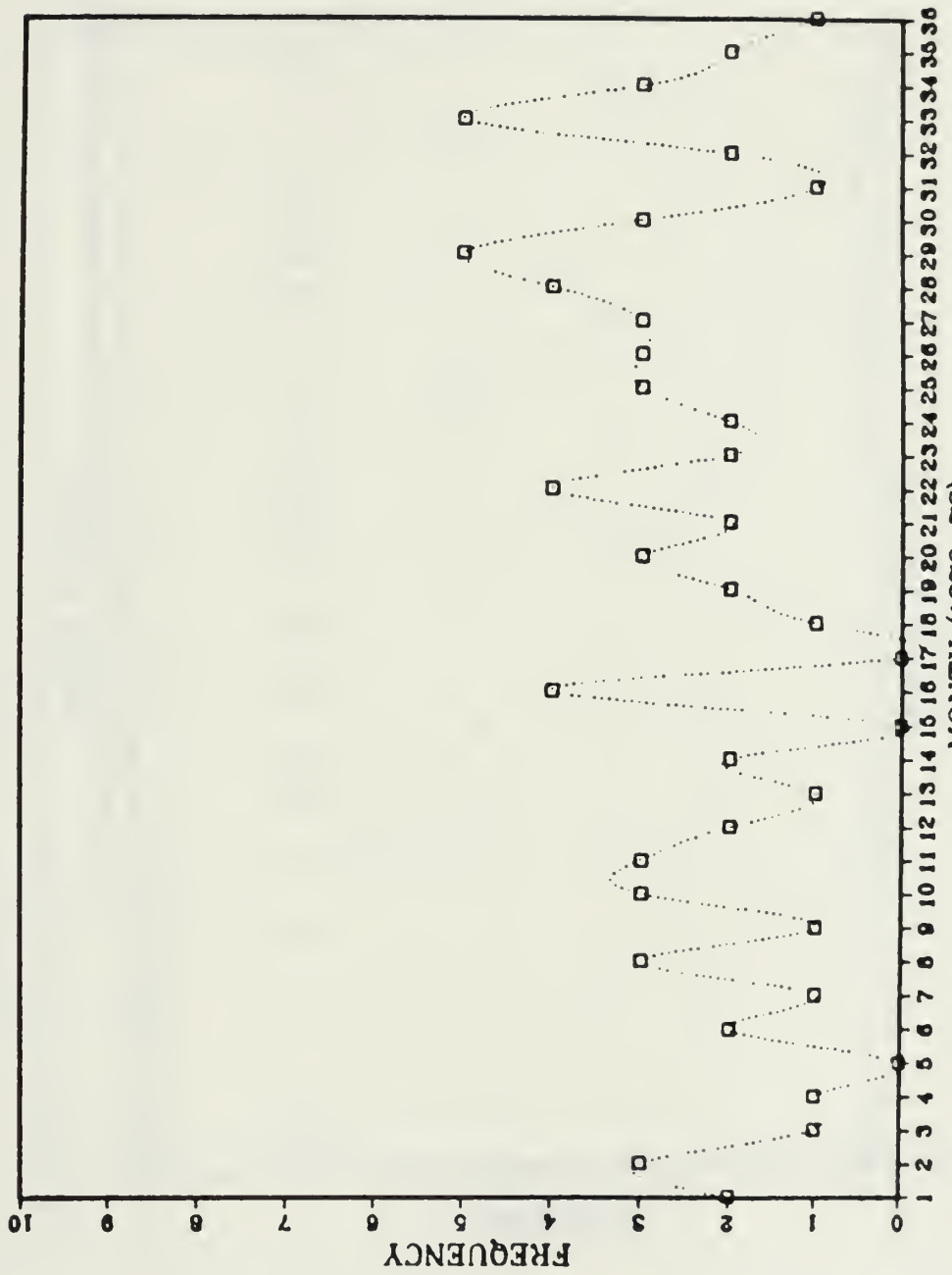

Figure 44. Navigation

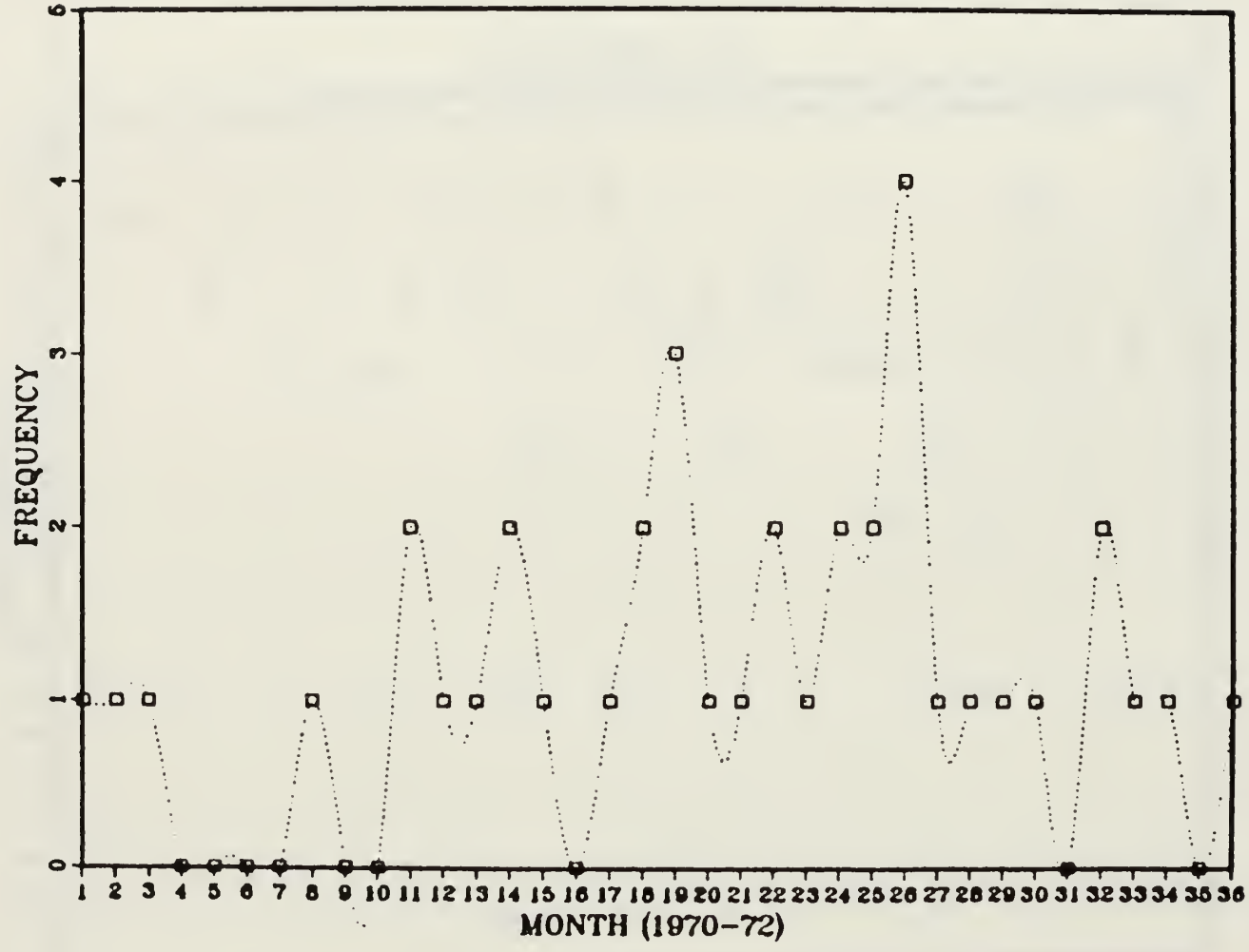

Figure 45. Oceanography/Oceanology

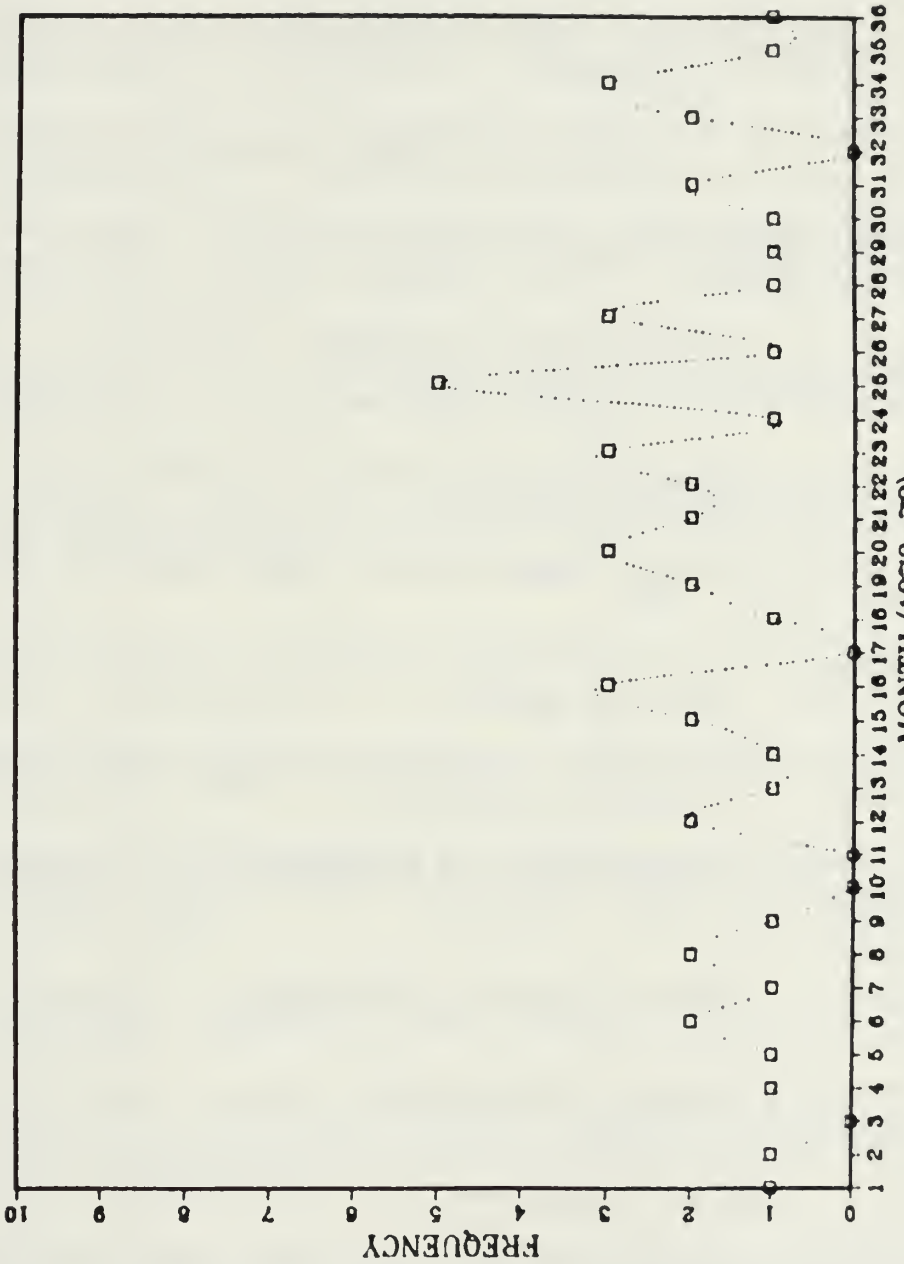

Figure 46. Political Duties

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